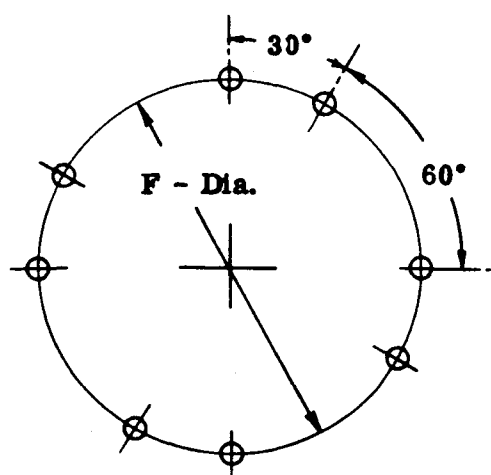
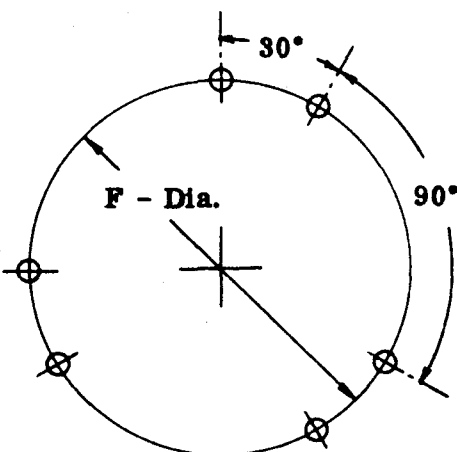
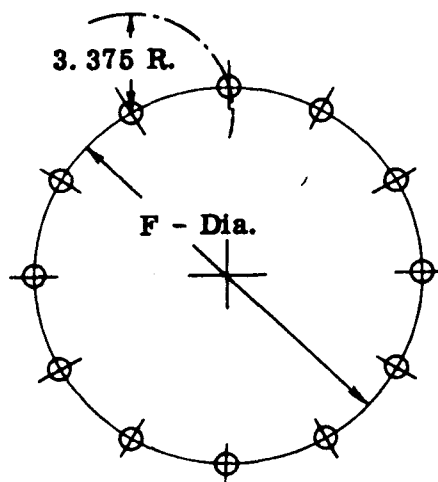




E - Group

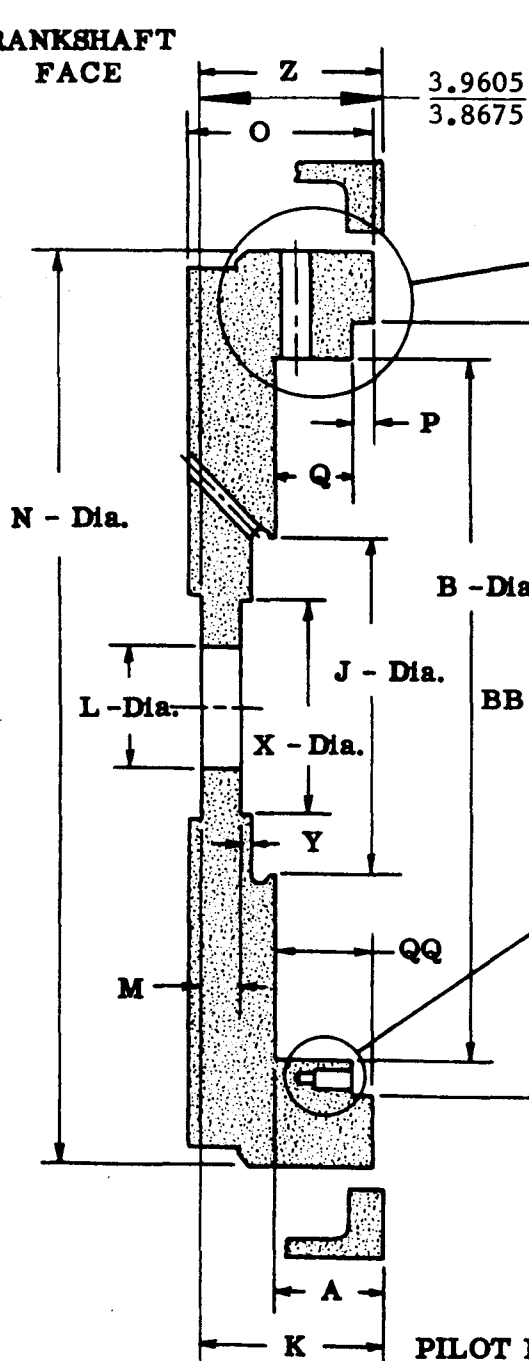


EE - Group

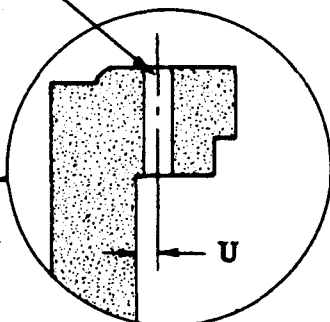


Note: Wheels indicated by (#) in table have 12 holes equally spaced except one as shown.

RANKSHAFT
FACE

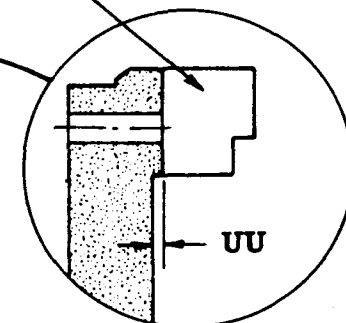


V - Ream
W - No. Holes

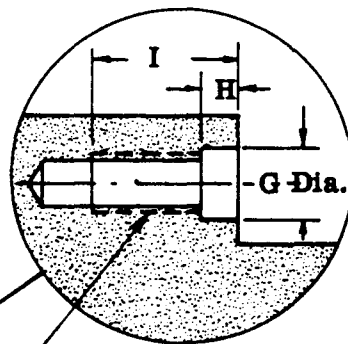


DRIVE PIN HOLE

VV - Slot Width
WW - No. Slots



DRIVE LUG SLOT

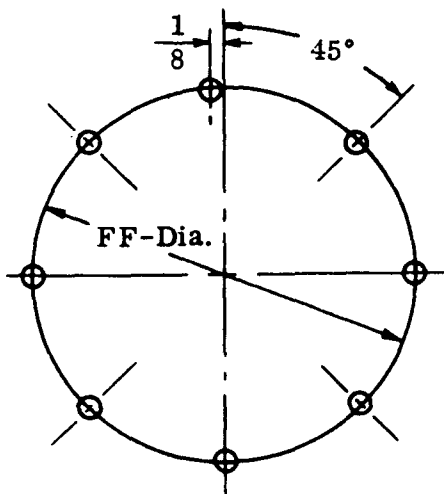


C - Tap
D - No. Holes
E or EE - Hole Grouping (a)
F - Bolt Circle

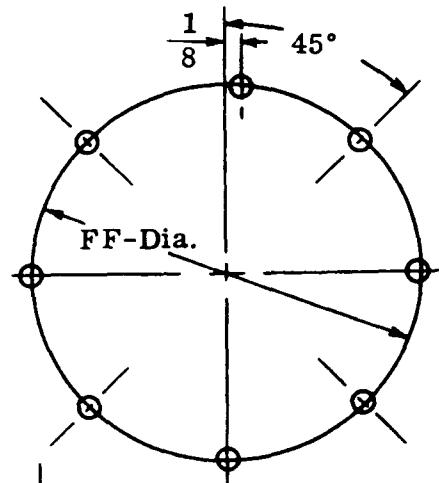
(a) When E & EE are blank in table, holes D are equally spaced except wheels indicated by (#)

	FLYWHEEL NUMBER						
	5109026(d)	5100510(d)	5100717(d)	5101077(d)			
REF	5126411	3224290	5137729	5137192			
A	2 31/64	2 31/64	2.62	2.62			
B	<u>14.002</u> 14.005	<u>14.752</u> 14.755	14.38	17.92			
BB	-	-	16.25				
C	3/8-16	3/8-16	3/8-16	3/8-16			
D	12	12	12	-			
E	-	-	-	-			
EE	-	-	-	-			
F	14 3/4	15 1/2	15.62	18.625			
G	-	-	-				
H	-	-	-				
I	11/16	11/16	.76	.88			
J	7	7	7.06	7.12			
K	3 59/64	3 59/64	3.918	3.875			
L	<u>2.8345</u> 2.8353	<u>2.8345</u> 2.8353	<u>2.8353</u> 2.8345	<u>2.4403</u> 2.4409			
M	13/16	13/16	.72	.63			
N	19 1/8	19 1/8	18.78	19.88			
O	4 5/8	4 5/8	2.87	3.11			
P	-	-	.24	-			
Q	-	-	1.08/1.09	-			
QQ	2 15/16	2 15/16	1.32	1.56			
U	11/16	3/4	-	.95			
UU	-	-	.15	.63			
V	<u>.4990</u> .5005	<u>.4990</u> .5005	-	.625/626			
VV	-	-	2.00	2.24			
W	4	12	-	-			
WW	-	-	4	6			
X	-	-	-	-			
Y	-	-	-	-			

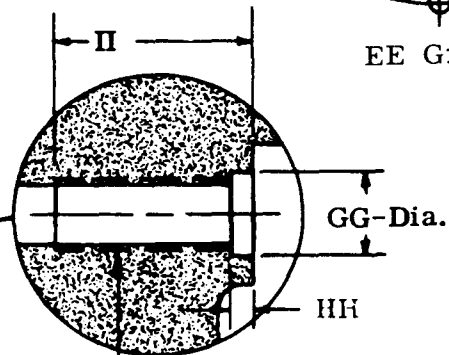
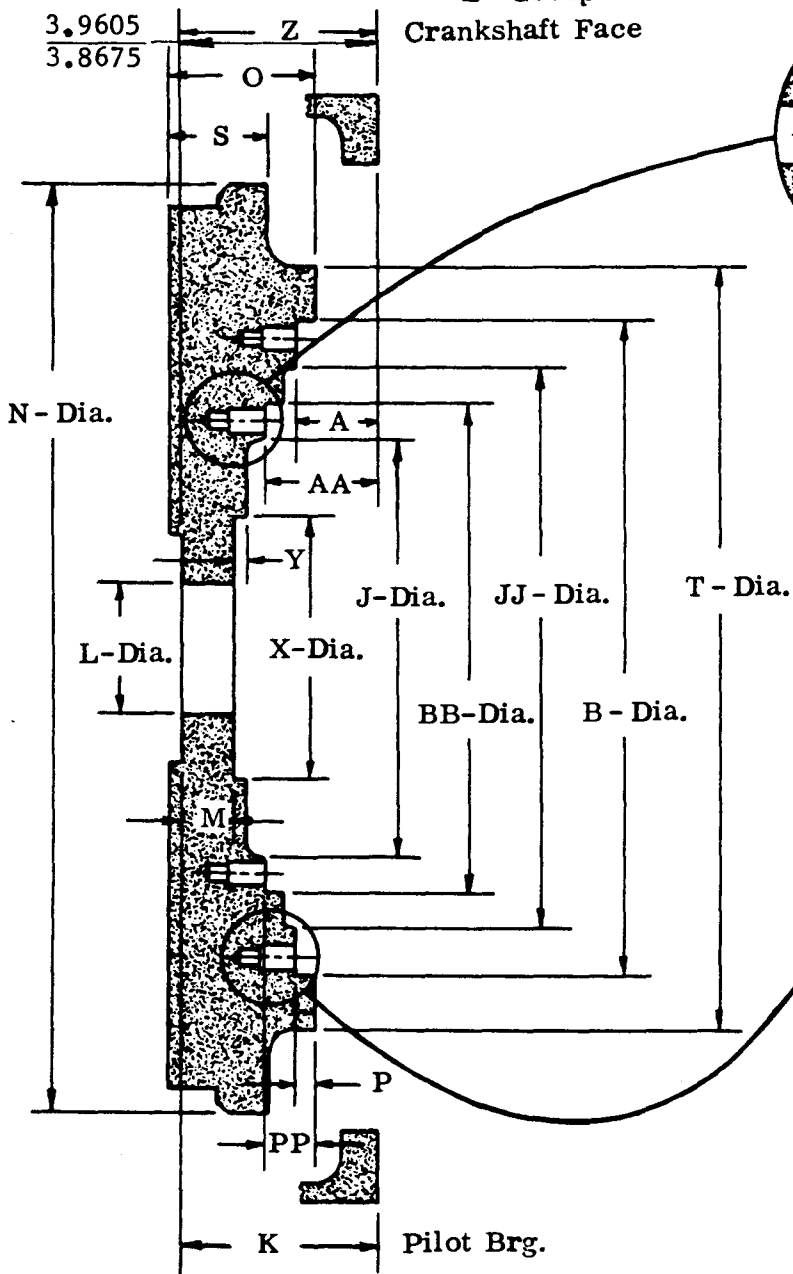
(d) 8V-92



E Group
Crankshaft Face



EE Group



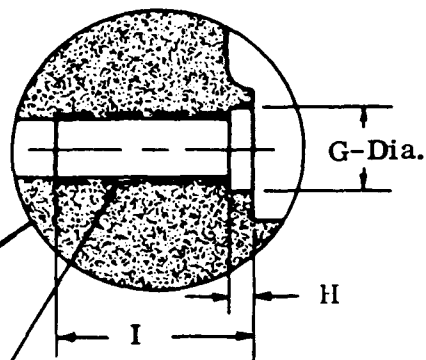
CC - Tap

DD - No. Holes

E or EE - Hole Grouping (a)

FF - Bolt Circle

(a) When E & EE are blank in table, holes DD are equally spaced.



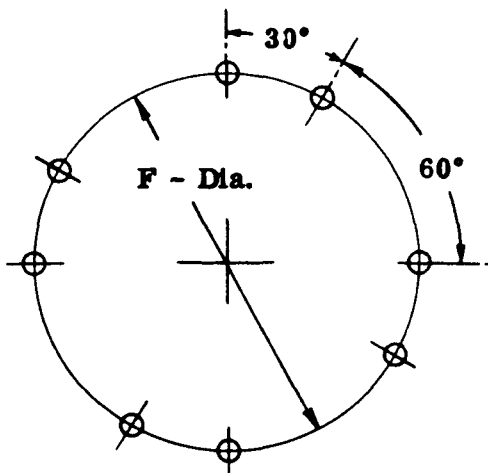
C - Tap

D - No. Holes (equally spaced)

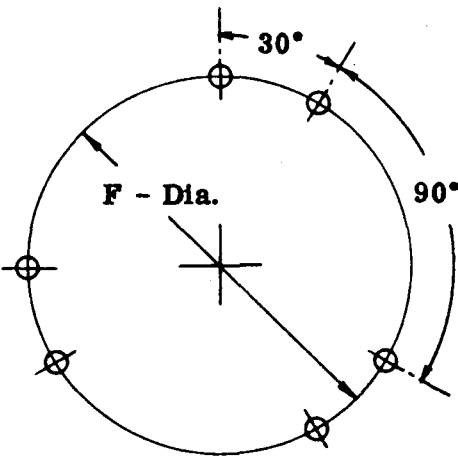
F - Bolt Circle

	FLYWHEEL NUMBER					
	5135478	5130583	5100516(d)			
REF	5132816		5181655			
A	2 1/4	1 49/64	2 25/64			
AA	3	-	-			
B	<u>14.624</u> 14.628	<u>12.002</u> 12.006				
BB	<u>10.876</u> 10.879	-	<u>10.252</u> 10.256			
C	1/2 13	3/8 16	-			
CC	1/2 13	-	3/8 16			
CC	1/2 13	-	3/8 16			
D	8	10	-			
DD	8	-	8			
E	-	-	*			
EE	-	-	-			
F	12	11 1/8	-			
FF	9 7/8	-	9 1/2			
G	-	-	-			
GG	-	-	7/16			
H	-	-	-			
HH	-	-	1/8			
I	1	3/4	-			
II	1 1/4	-	1			
J	8 3/4	10	8 3/4			
JJ	10.94	-	11 1/2			
K	-	3 59/64	3 59/64			
L	2 5/8	3	2 5/8			
M	9/16	13/16	5/8			
N	19	20	19 15/16			
O	2.10	2 53/64	2 5/8			
P	3/16	27/64	-			
PP	.158/155	-	27/32			
S	2	-	-			
T	16 1/4	-	-			
X	5 5/16	-	5 1/2			
Y	1/8	-	1/8			

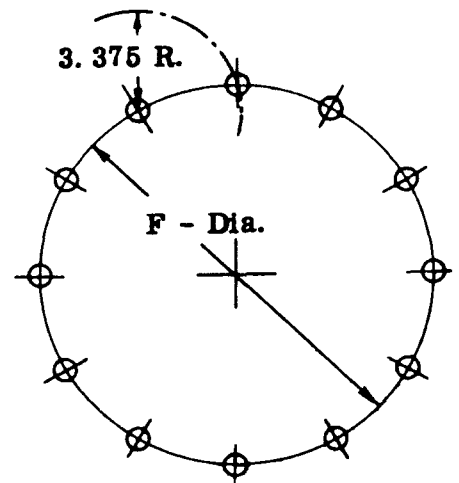
(d) 8V-92



E - Group

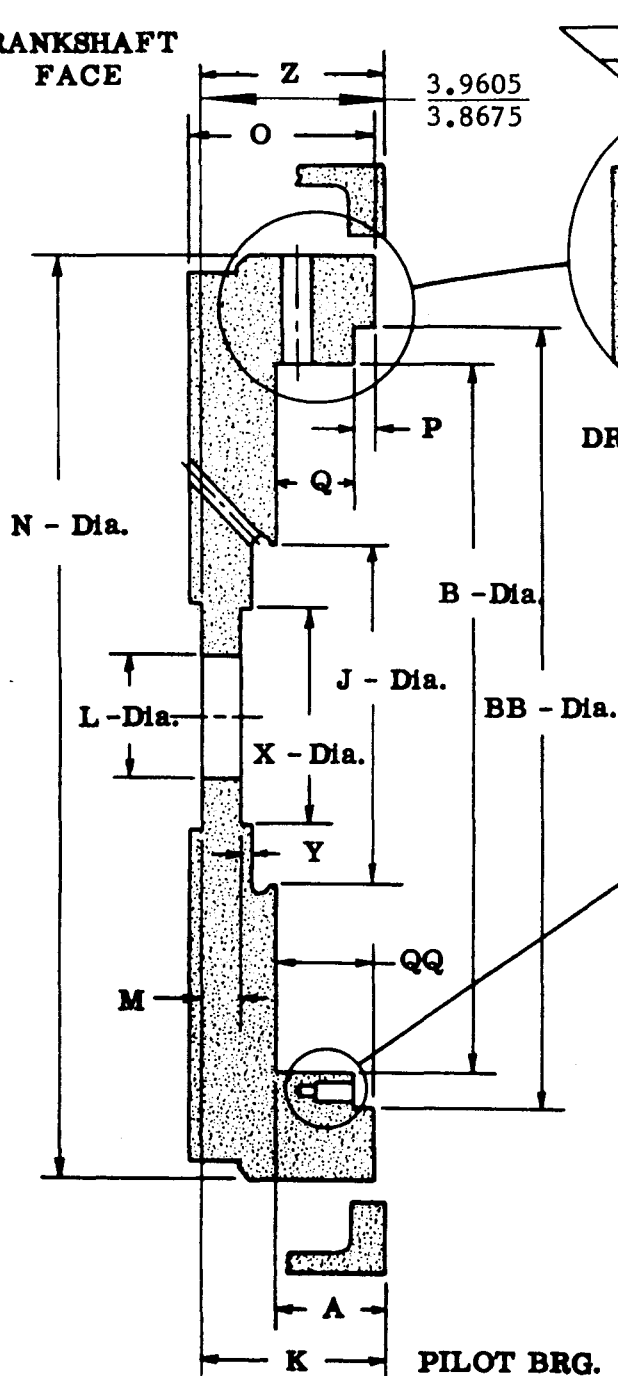


EE - Group

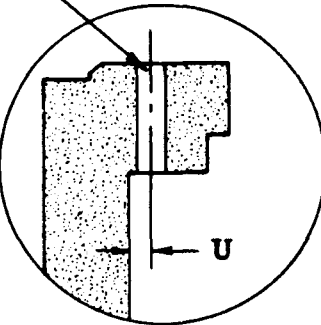


Note: Wheels indicated by (#) in table have 12 holes equally spaced except one as shown.

CRANKSHAFT
FACE

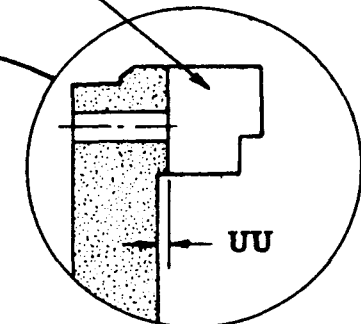


V - Ream
W - No. Holes

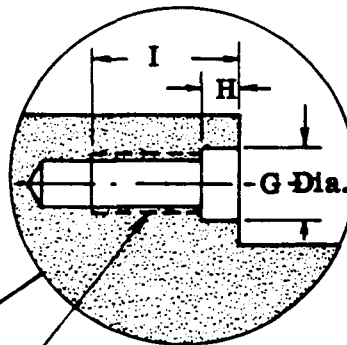


DRIVE PIN HOLE

VV - Slot Width
WW - No. Slots



DRIVE LUG SLOT

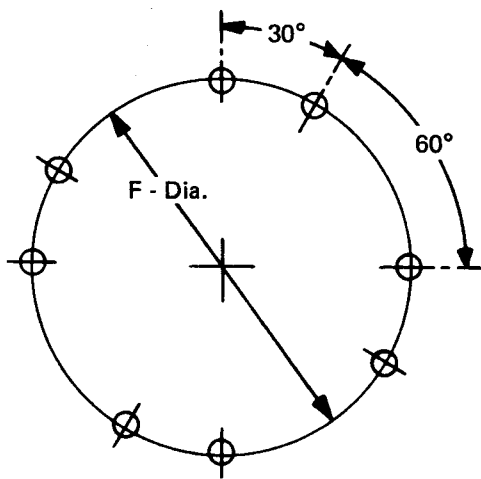


C - Tap
D - No. Holes
E or EE - Hole Grouping (a)
F - Bolt Circle

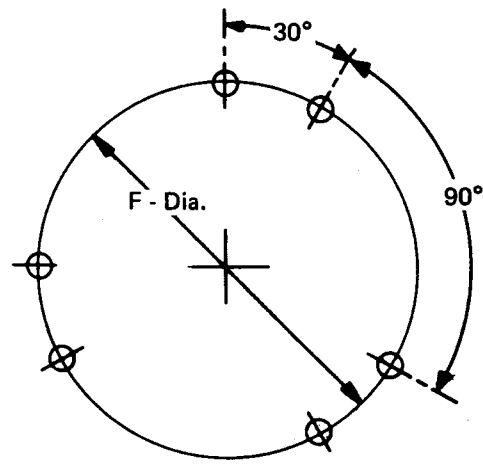
(a) When E & EE are blank in table, holes D are equally spaced except wheels indicated by (#)

Misc. Types
92 - 1MT

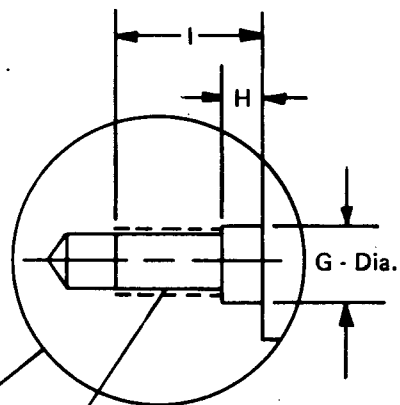
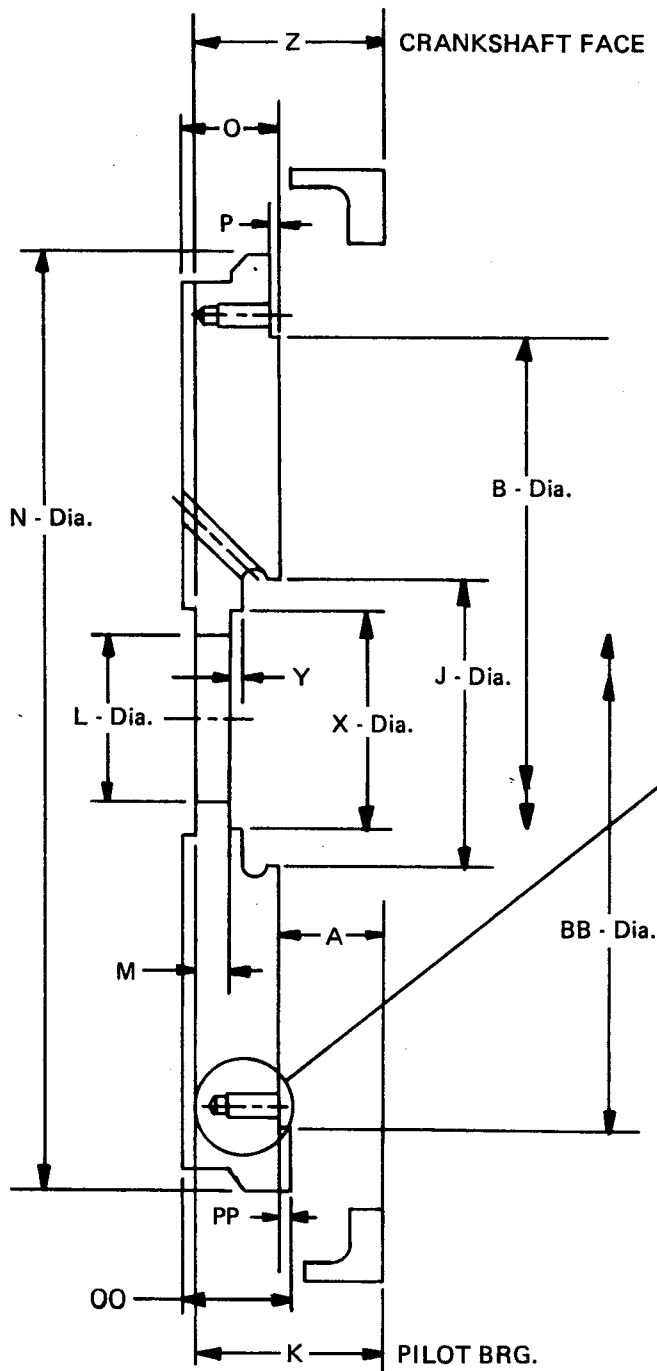
	FLYWHEEL NUMBER						
	5137135						
REF.							
A	--						
B	$\frac{6.244}{6.248}$						
BB	--						
C	1/2 13						
D	12						
F	7 1/4						
I	7/8						
J	--						
K	--						
L	$\frac{2.751}{2.754}$						
M	1.72						
N	18.80						
O	1.97						
P	--						
Q	--						
X	--						
Y	--						



E - Group

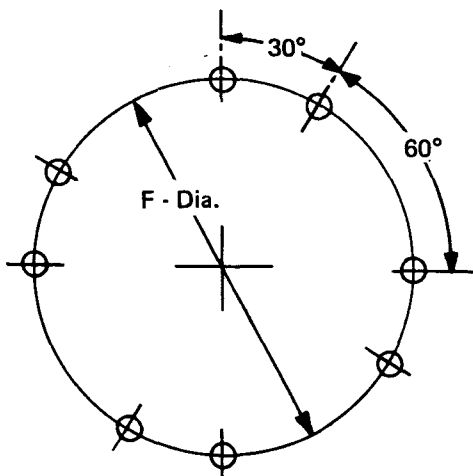


EE - Group

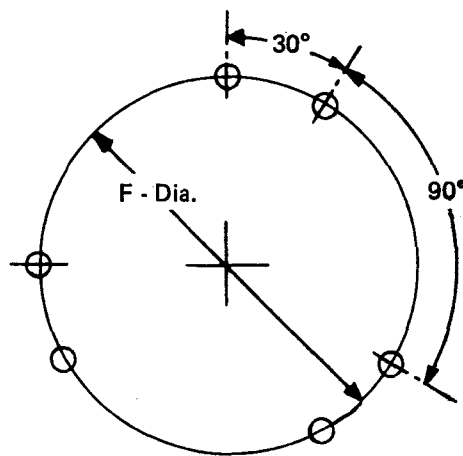


- C - Tap
- D - No. Holes
- E - or EE - Hole Grouping (a)
- F - Bolt Circle
- (a) When E & EE are blank in table, holes D are equally spaced

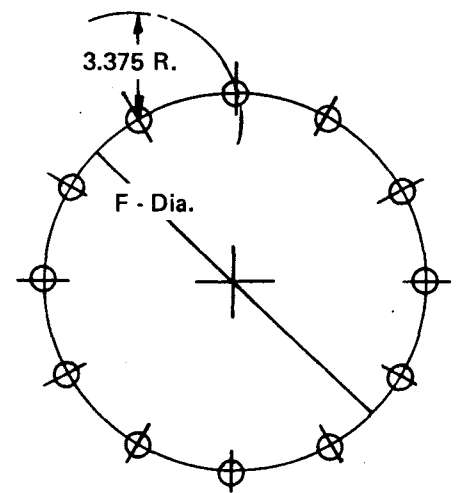
	FLYWHEEL NUMBER						
		5101805					
REF		5116788					
A		2.48					
B		15.24					
C		7/16-14					
D		12					
F		16.625					
I		Thru					
J		6.00					
K							
L		<u>2.8345</u> 2.8353					
M		.76					
N		<u>17.40</u> 17.50					
O		2.34					
P		.12					
Z		4.45					



E - Group

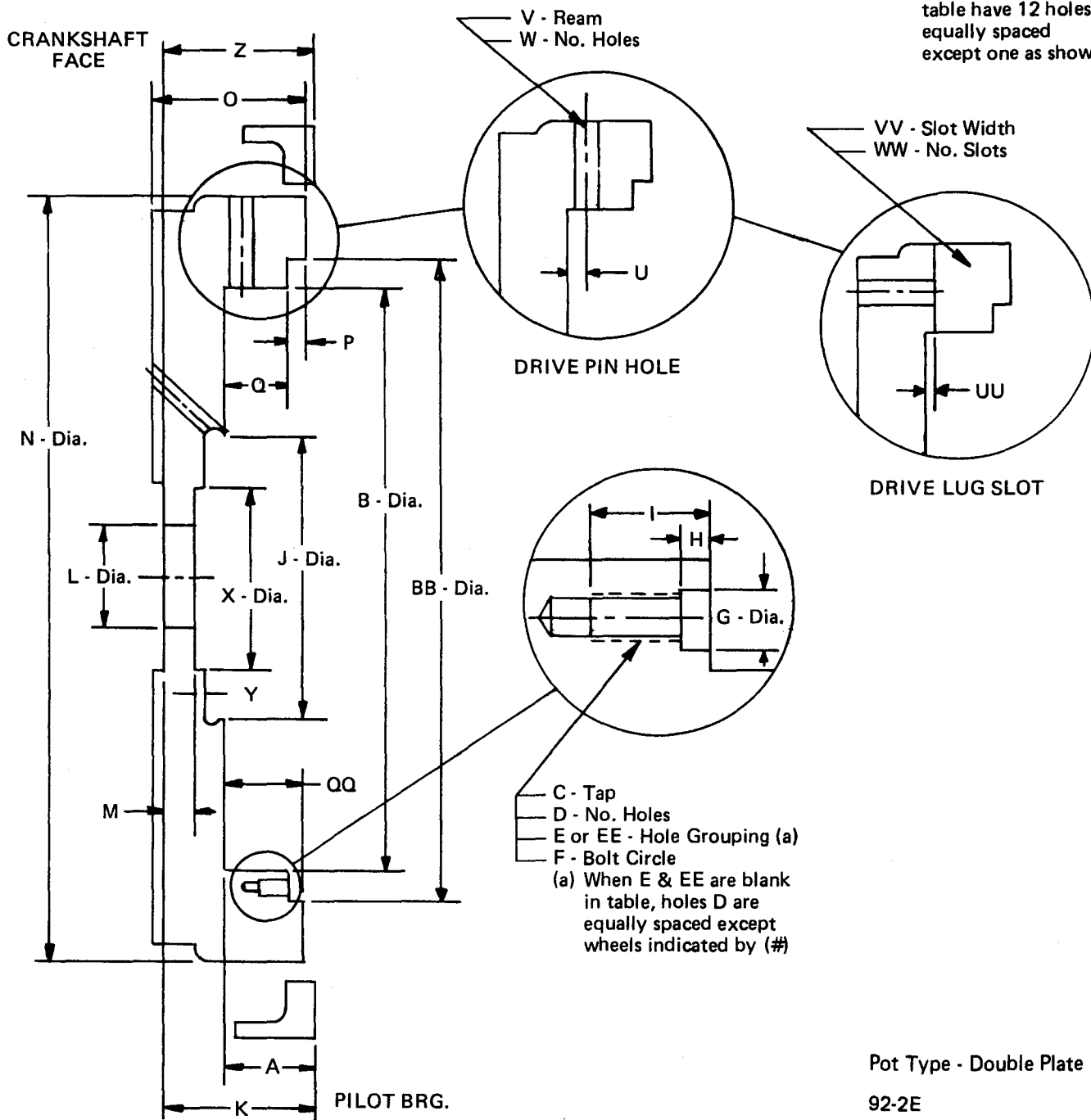


EE - Group



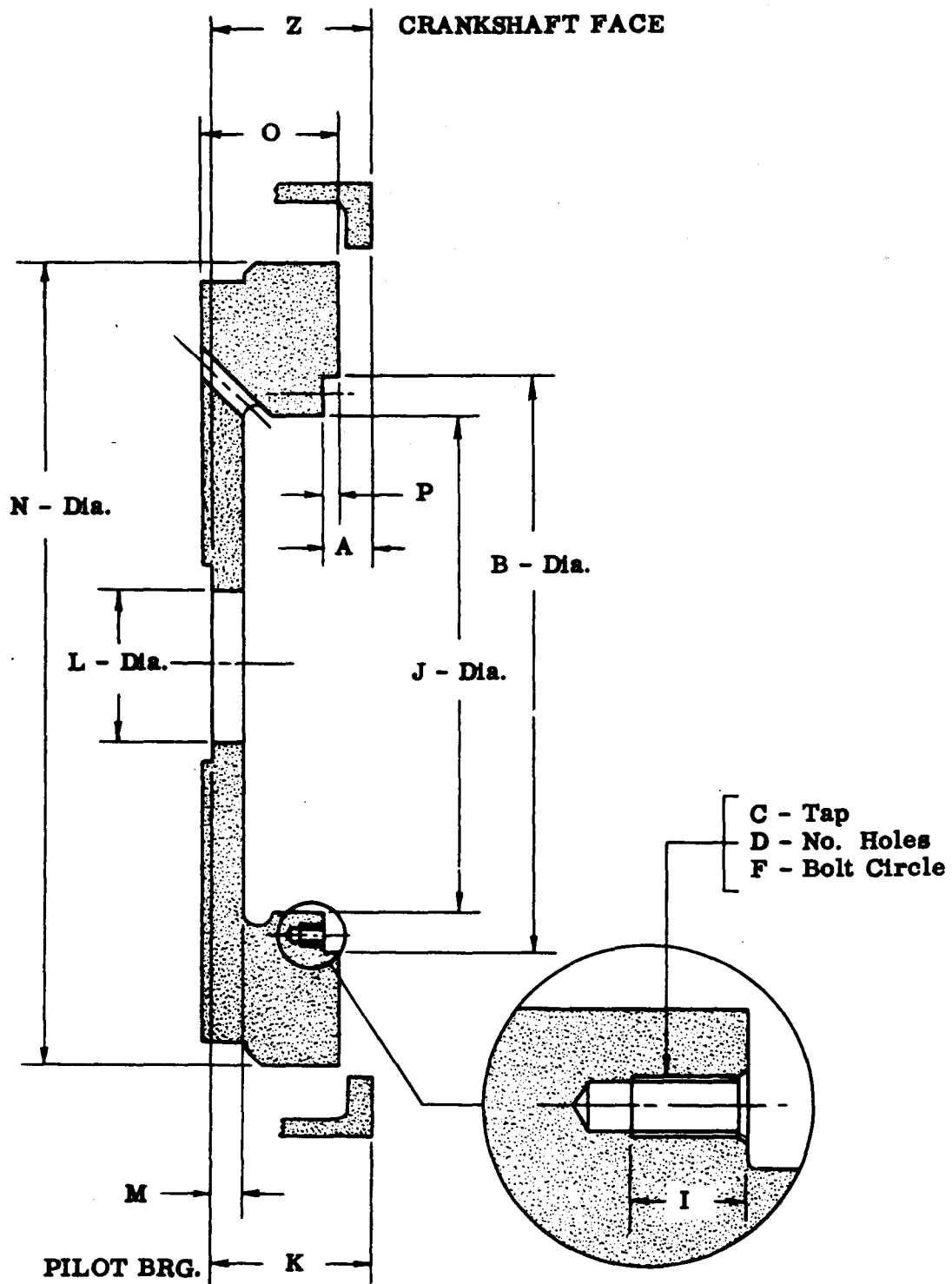
Note: Wheels indicated by (#) in table have 12 holes equally spaced except one as shown.

CRANKSHAFT
FACE



- C - Tap
 - D - No. Holes
 - E or EE - Hole Grouping (a)
 - F - Bolt Circle
- (a) When E & EE are blank in table, holes D are equally spaced except wheels indicated by (#)

	FLYWHEEL NUMBER						
	5101804						
REF	5177286						
A	.43						
B	<u>14.752</u> 14.755						
BB	-						
C	3/8-16						
D	12						
E	-						
EE	-						
F	15 1/2						
G	-						
H	-						
I	2.00						
J	7.00						
K	3.98						
L	<u>2.8345</u> 2.8353						
M	.65						
N	17.41						
O	5.13						
P	-						
Q	-						
QQ	2.94						
U	.75						
UU	-						
V	<u>.4990</u> .5005						
VV	-						
W	12						
WW	-						
X	5.7-						
Y	.16						
Z	4.45						

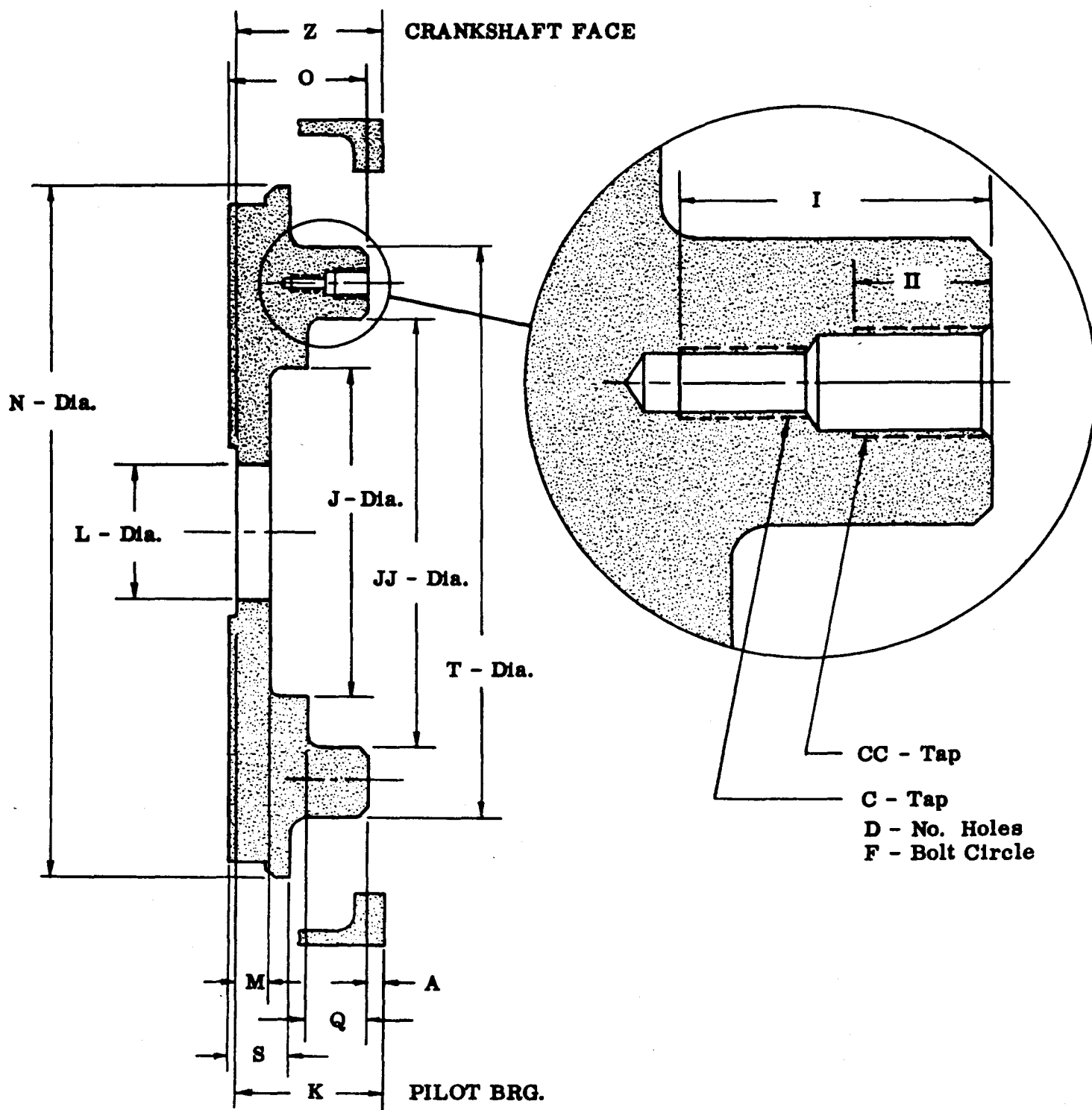


	FLYWHEEL NUMBER						
	5120772(f)	5176674	5187260	5189455	5116775#	5120191	
A	1 1/16	1 1/16	61/64	61/64	1 3/8	2 11/16	
B	$\frac{18.376}{18.379}$	$\frac{18.376}{18.379}$	$\frac{22.501}{22.505}$	$\frac{22.501}{22.505}$	$\frac{15.376}{15.374}$	$\frac{18.380}{18.385}$	
C	1/2-13	1/2-13	5/8-11	5/8-11	5/8-11	1/2-13	
D	8	8	6	6	8	8	
F	17 1/4	17 1/4	21 3/8	21 3/8	14	17 1/4	
I	1	1	1 3/8	1 1/4	1 1/8	1 1/8	
J	16 3/16	16 3/16	18 3/8	18 3/8	10	14 1/2	
K	3 61/64	3 61/64	3 61/64	3 61/16	3 61/64	3 61/64	
L	$\frac{3.1495}{3.1503}$	$\frac{3.1495}{3.1503}$	$\frac{3.1495}{3.1503}$	$\frac{3.1483}{3.1491}$ (b)	$\frac{3.1495}{3.1503}$ (b)	$\frac{3.1483}{3.1491}$	
M	1 13/32	1 13/32	1 13 32	1 5/64	1 13/64	1 5/64	
N	22	22	22 7/8	22 7/8	22	22	
O	3 15/32	3 15/32	3 7/16	3 7/16	3 11/64	3 1/4	
P	19/64	19/64	3/16	3/16	23/64	7/16	
Z	$\frac{3.9860}{3.9094}$	$\frac{3.9860}{3.9094}$	$\frac{3.9860}{3.9094}$	$\frac{3.9860}{3.9094}$	$\frac{3.9860}{3.9094}$	$\frac{3.9860}{3.9094}$	

(b) Uses Hyatt Roller Bearing

(f) Machined for Seal Ring at Crankshaft
obsolete

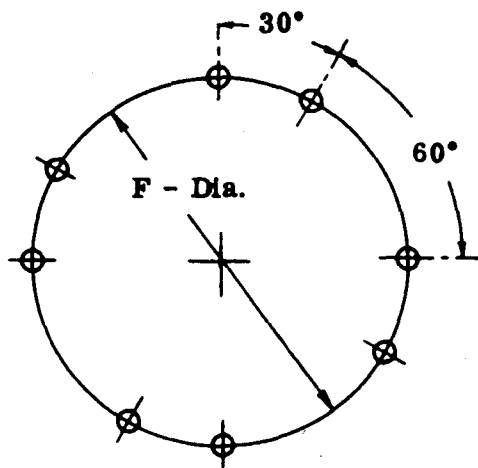
Drive Ring Type
110 - 1/2A1



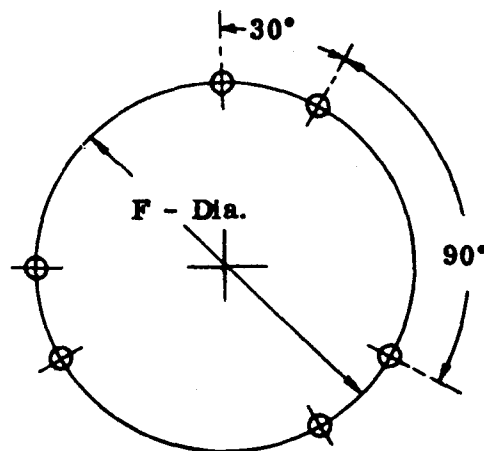
	FLYWHEEL NUMBER					
	5111141	5189991				
A	1/64(e)	1 11/64(e)				
C	1/2 - 13	1/2 - 13				
CC	-	3/4 - 16				
D	8	8				
F	16	14				
I	1 1/8	2 1/8				
II	-	15/16				
J	7 1/2	9 7/32				
JJ	14 3/4	12				
K	3 61/64	3 1/4				
L	3 1/8	$\frac{3.1495}{3.1503}$				
M	7/8	23/32				
N	21 13/16	22				
O	4 3/16	5 3/8				
Q	2 13/32	3 1/32				
S	2 23/64	3 5/32				
T	17 13/64	15 1/2				
Z	$\frac{3.9860}{3.9094}$	$\frac{3.9860}{3.9094}$				

(e) Protrudes beyond Flywheel Housing

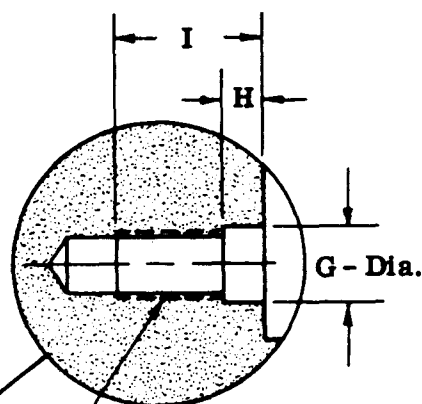
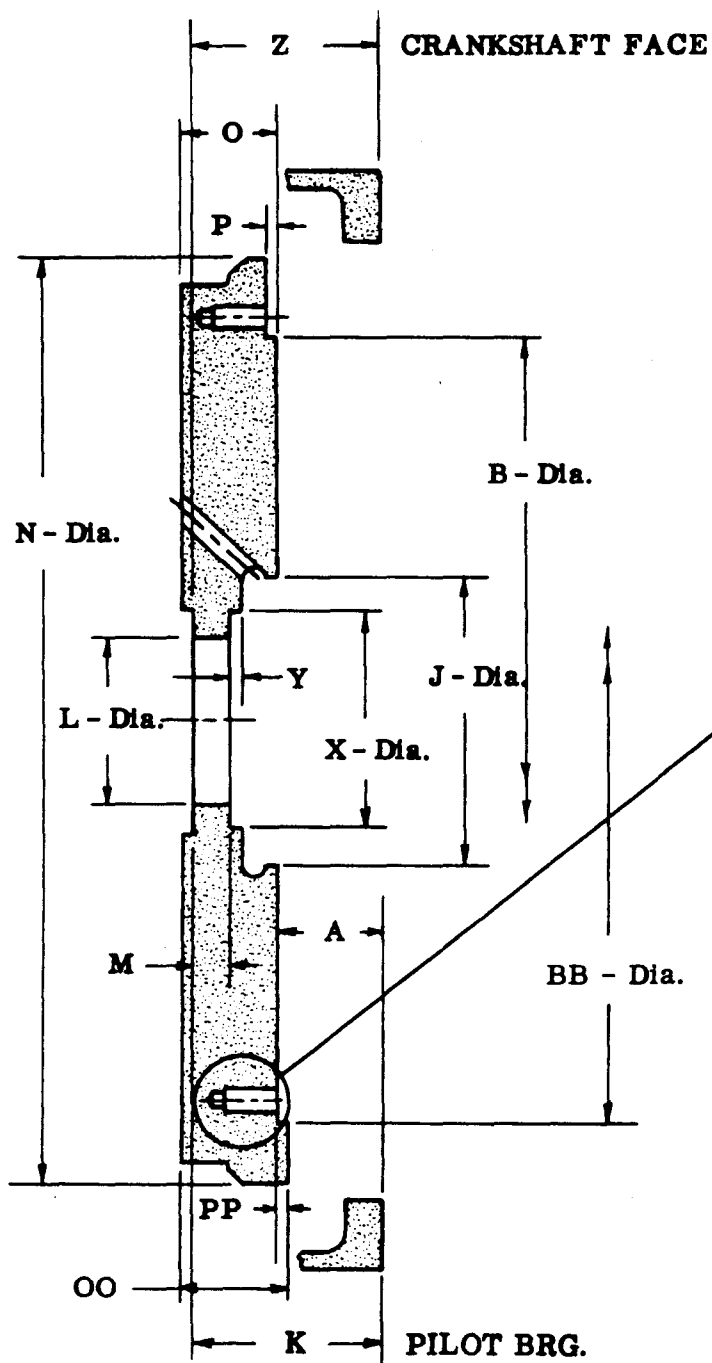
Industrial Clutch
F4-59-80
110-1/2 B1



E - Group



EE - Group

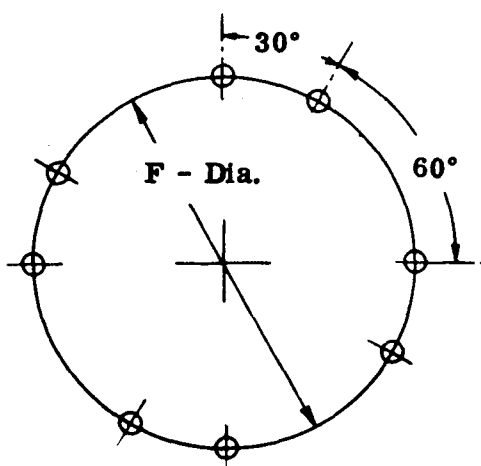


- C - Tap
 - D - No. Holes
 - E - or EE - Hole Grouping (a)
 - F - Bolt Circle
- (a) When E & EE are blank in table, holes D are equally spaced

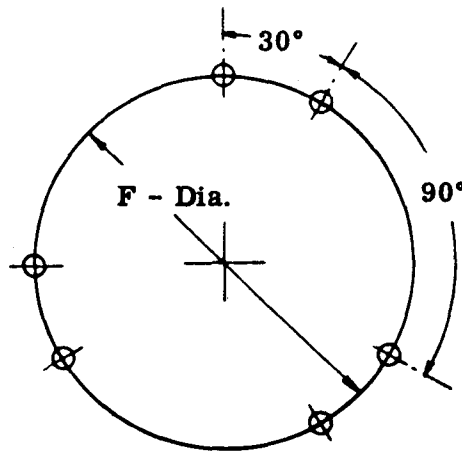
	FLYWHEEL NUMBER						
	5187845						
A	1 1/32						
B	-						
BB	-						
C	1/2 - 13						
D	10						
E	-						
EE	-						
F	17 1/8						
G	-						
H	-						
I	1 1/8						
J	10						
K	3 61/64						
L	$\frac{3.1495}{3.1503}^{(b)}$						
M	1 13/32						
N	22						
O	3 11/64						
OO	-						
P	-						
PP	-						
X	-						
Y	-						
Z	$\frac{3.9860}{3.9094}$						

(b) Uses Hyatt Roller Bearing

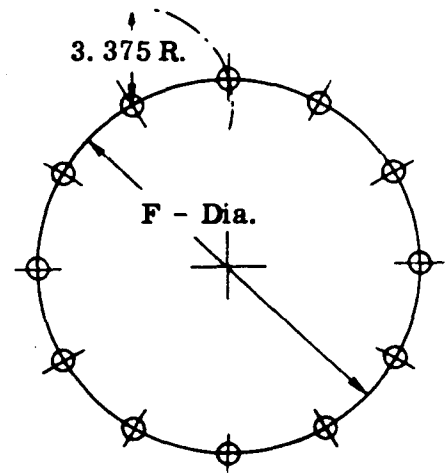
Flat Type
110 - 1/2 C1



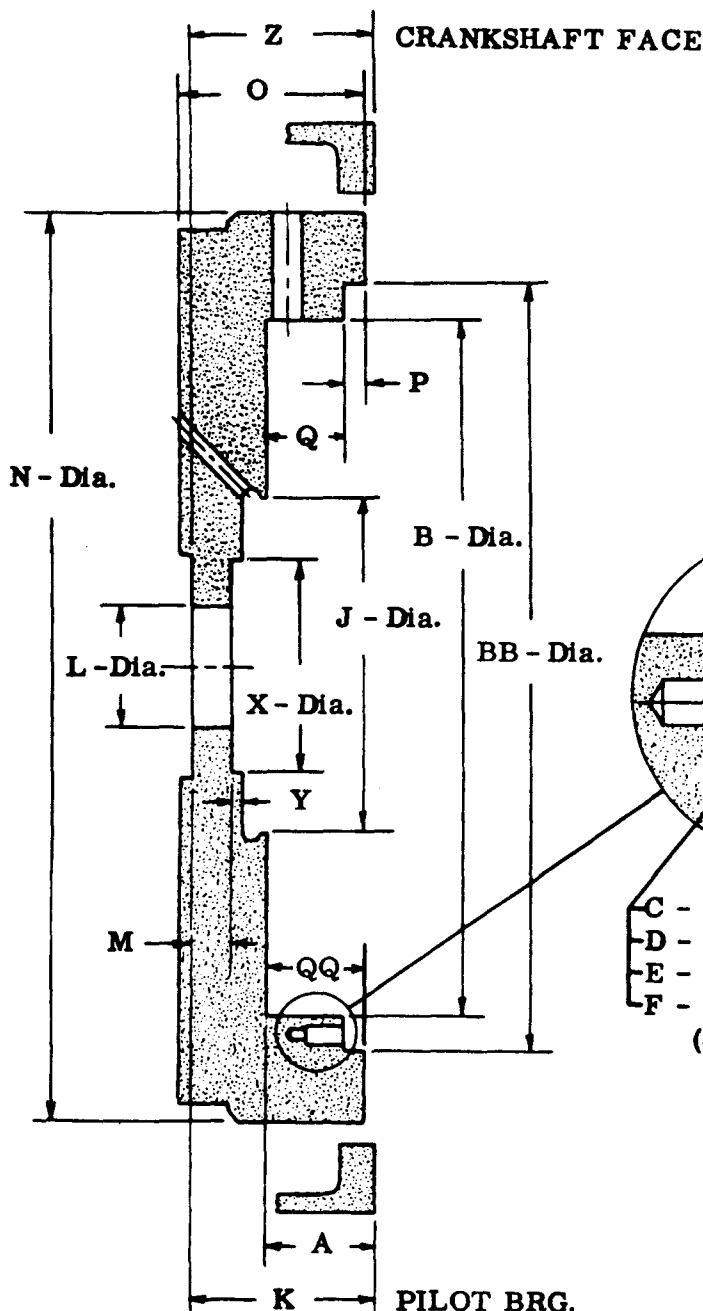
E - Group



EE - Group



Note: Wheels indicated by (#) in table have 12 holes equally spaced except one as shown.



- C - Tap
- D - No. Holes
- E - or EE - Hole Grouping (a)
- F - Bolt Circle

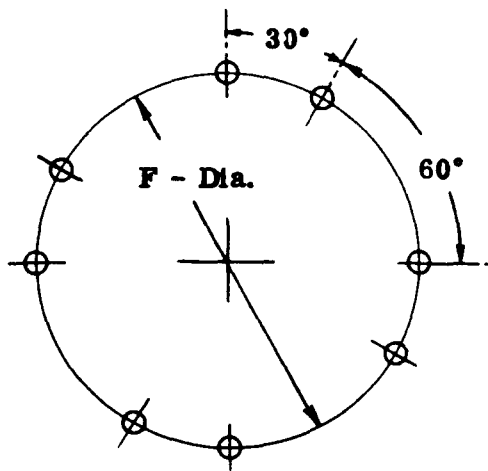
(a) When E & EE are blank in table, holes D are equally spaced except wheels indicated by (#)

Pot Type - Single Plate
110 - 1/2D

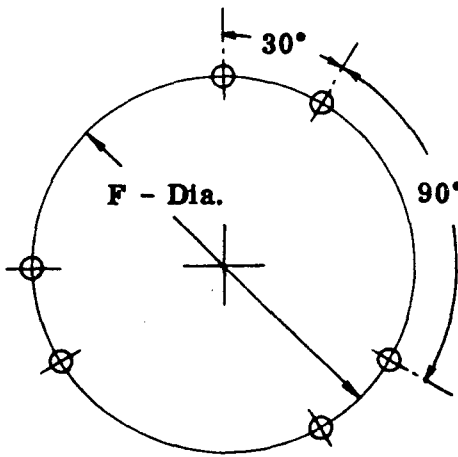
	FLYWHEEL NUMBER						
	5114508	5186682	5187329				
A	1 39/64	2 33/64	2.007				
B	15 1/4	<u>18.001</u> 18.004	16 7/8				
BB	<u>17.250</u> 17.253	-	<u>18.500</u> 18.503				
C	1/2 - 13	3/8 - 16	3/8 - 16				
D	9	12	12				
E	-	-	-				
EE	-	-	-				
F	16 1/4	18 3/4	17 5/8				
G	-	-	-				
H	-	-	-				
I	1	7/8	3/4				
J	8 7/8	6 27/64	9 31/64				
K	3 61/64	3 61/64	3 61/64				
L	<u>2.8333</u> (b) 2.8341	<u>2.8345</u> 2.8353	<u>2.805</u> 2.810				
M	1 1/64	3/4	3/4				
N	21 5/8	22	21 13/16				
O	4 3/16	2 29/32	3 43/64				
P	15/64	-	1/4				
Q	1 39/64	-	1 1/4				
QQ	-	1 7/32	-				
X	6	-	6				
Y	1/4	-	29/64				
Z	<u>3.9860</u> 3.9094	<u>3.9860</u> 3.9094	<u>3.9860</u> 3.9094				

(b) Uses Hyatt Roller Bearing

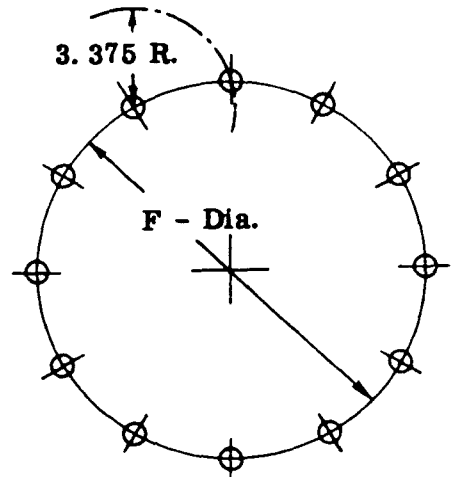
Pot Type - Single Plate
110 - 1/2 D1



E - Group

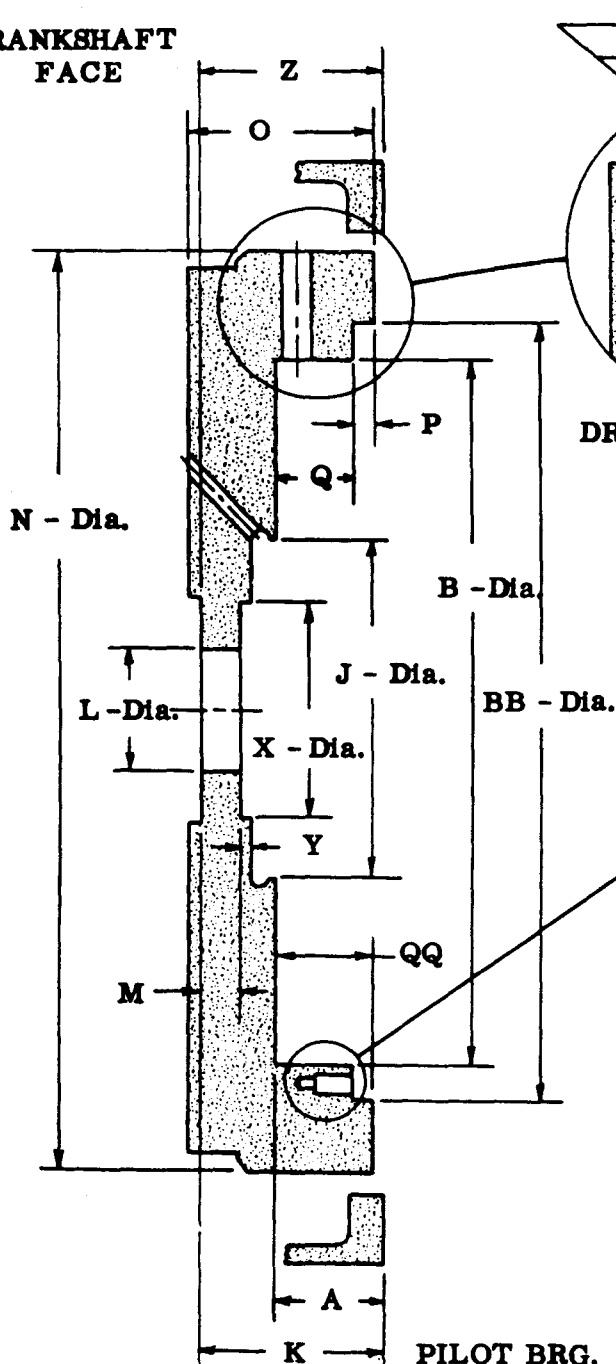


EE - Group

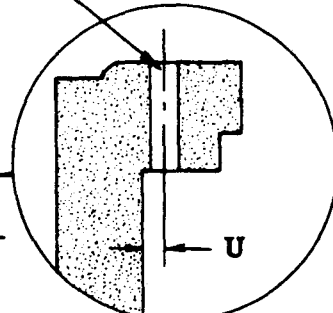


Note: Wheels indicated by (#) in table have 12 holes equally spaced except one as shown.

RANKSHAFT
FACE

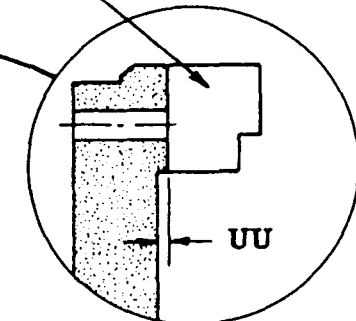


V - Ream
W - No. Holes

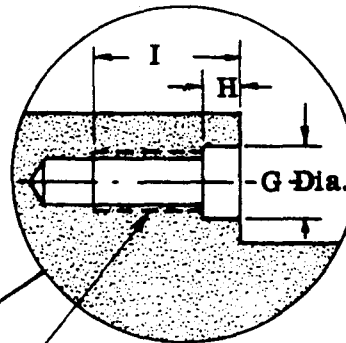


DRIVE PIN HOLE

VV - Slot Width
WW - No. Slots



DRIVE LUG SLOT



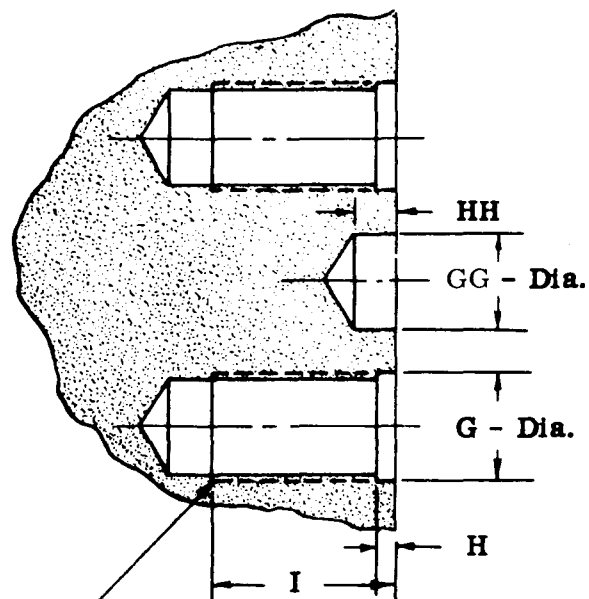
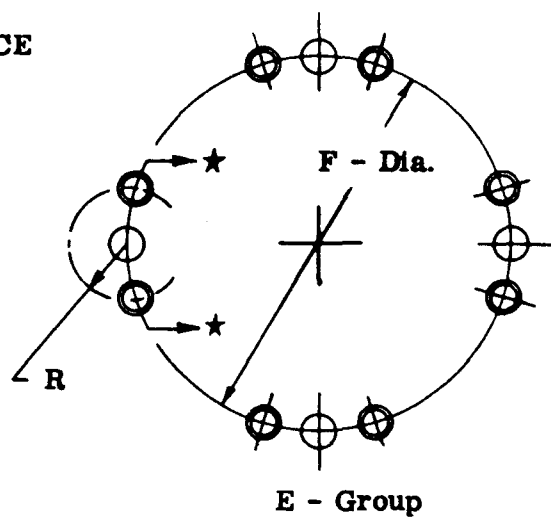
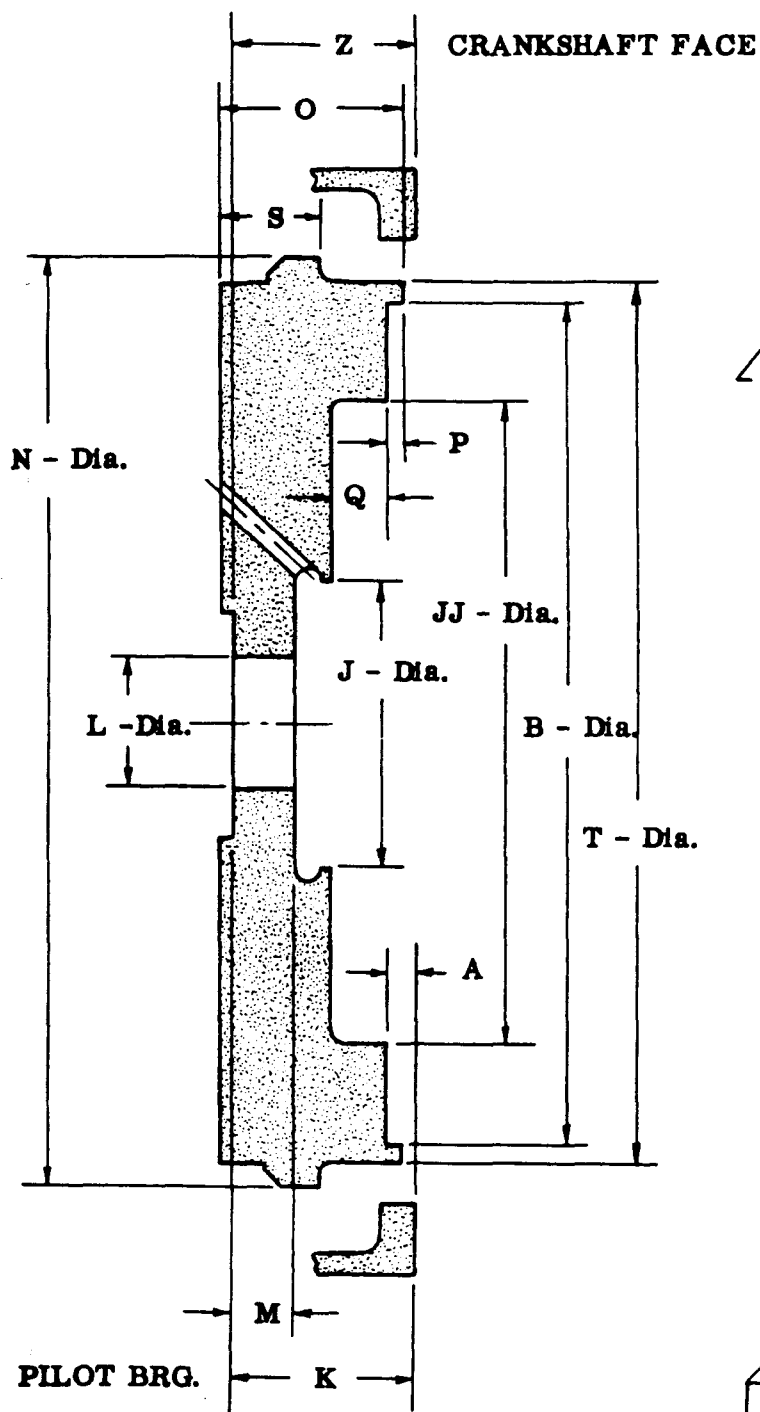
C - Tap
D - No. Holes
E or EE - Hole Grouping (a)
F - Bolt Circle

(a) When E & EE are blank in table, holes D are equally spaced except wheels indicated by (#)

Pot Type - Double Plate
110 - 1/2E

	FLYWHEEL NUMBER					
	5113185	5176797				
A	2 3/16	2 3/16				
B	<u>18.000</u> 18.003	<u>18.000</u> 18.003				
BB	-	-				
C	3/8 - 16	3/8 - 16				
D	12	12				
E	-	-				
EE	-	-				
F	18 3/4	18 3/4				
G	-	-				
H	-	-				
I	1 7/32	7/8				
J	9 31/64	9 31/64				
K	3 61/64	3 61/64				
L	<u>2.8338</u> 2.8346	<u>2.8338</u> 2.8346				
M	3/4	3/4				
N	21 13/16	21 13/16				
O	4 11/32	4 11/32				
P	-	-				
Q	-	-				
QQ	2 21/64	2 21/64				
U	13/16	13/16				
UU	-	-				
V	<u>.6245</u> .6255	<u>.6245</u> .6255				
VV	-	-				
W	6	6				
WW	-	-				
X	-	-				
X	-	-				
Y	-	-				
Z	<u>3.9860</u> 3.9094	<u>3.9860</u> 3.9094				

Pot Type-Double Plate
110-1/2E1



VIEW - ★★

- C - Tap
- D - No. Holes
- E - Hole Grouping
- F - Bolt Circle

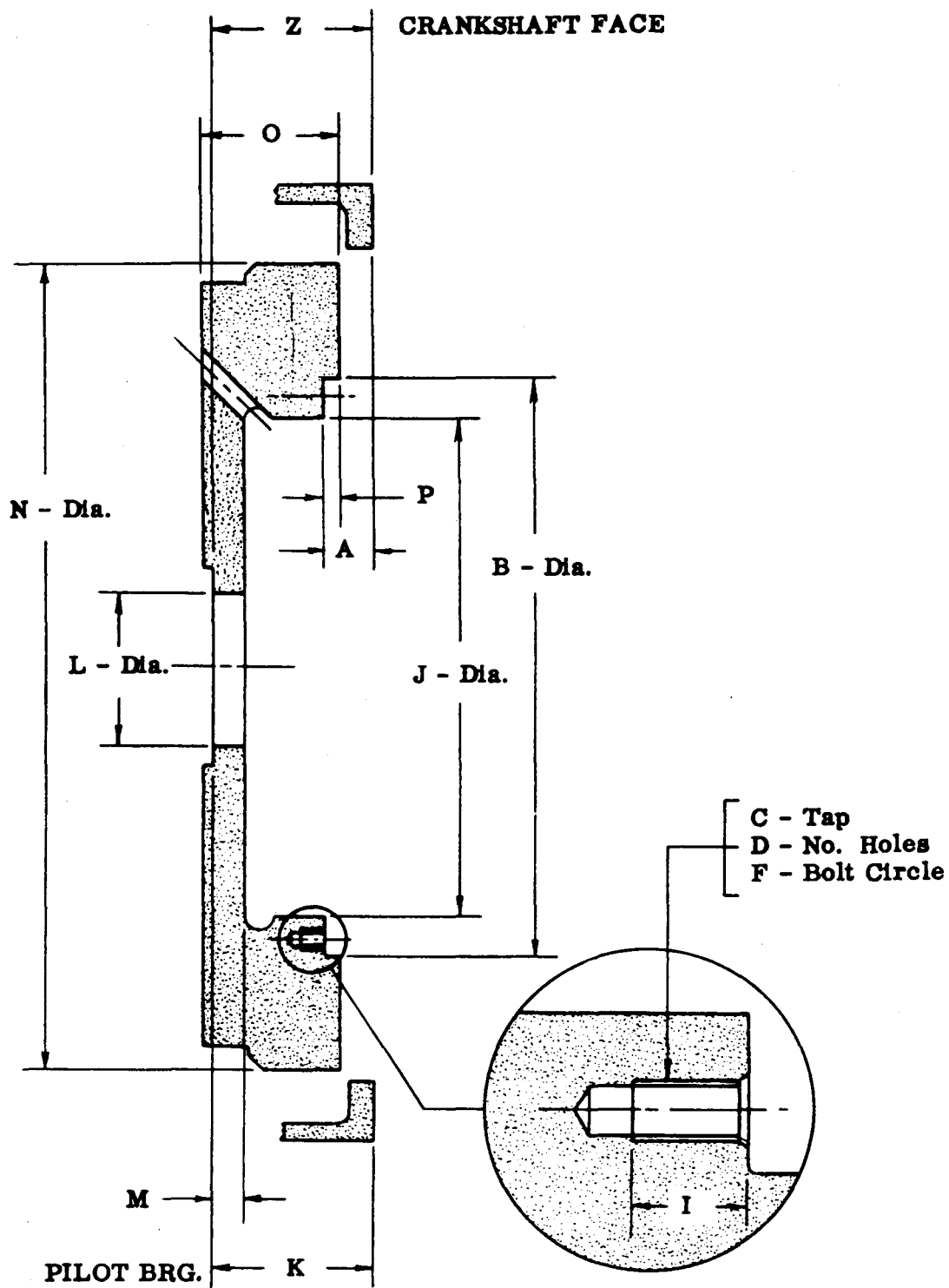
	FLYWHEEL NUMBER						
	5118593(1)	5178960	5188303	5111528			
A	47/64	47/64	3/32	-1/4 (m)			
B	$\frac{17.755}{17.758}$	$\frac{17.755}{17.758}$	$\frac{15.000}{15.002}$	$\frac{21.375}{21.380}$			
C	5/8 - 11	5/8 - 11	5/8 - 11	5/8 - 11			
D	8	8	8	10			
E	*	*	*	*			
F	15 1/2	15 1/2	13 1/4	19 3/8			
G	21/32	21/32	21/32	-			
GG	11/16	3/4	3/4	3/4			
H	1/8	1/8	1/8	-			
HH	5/16	5/16	3/8	3/8			
I	1 3/16	1 3/16	1 13/64	1 1/8			
J	5 5/8	5 5/8	6 1/8	6 1/8			
JJ	13 1/2	13 1/2	11 7/8	18			
K	3 61/64	3 61/64	3 61/64	3 61/64			
L	3 1/8	3 1/8	3 1/8	3 1/8			
M	3/4	3/4	1 13/32	1 13/32			
N	21 13/16	21 13/16	22	22			
O	3 23/32	3 23/32	4 9/16	5			
P	1/4	1/4	29/64	9/16			
Q	1 23/32	1 23/32	1 9/16	2 9/64			
R	1 1/8	1 1/8	1 1/8	1 1/8			
S	2 23/64	2 23/64	2 51/64	-			
T	19 1/2	19 1/2	16 1/8	-			
Z	$\frac{3.9860}{3.9094}$	$\frac{3.9860}{3.9094}$	$\frac{3.9860}{3.9094}$	$\frac{3.9860}{3.9094}$			

(1) Ni-Resist Cast Iron

* E Hole Group - See 110-1/2G

(m) Protrudes Beyond Bell Face

Generator Type
110 - 1/2 G1



	FLYWHEEL NUMBER						
	5124625	5111535	5119969	5181663(a)	5100152	5130920(a)	5131408(a)
A	1 25/64	1 25/64	1 7/32	1	1 51/64	1	1
B	$\frac{18.376}{18.379}$	$\frac{18.376}{18.379}$	$\frac{18.376}{18.379}$	$\frac{18.376}{18.379}$	$\frac{18.500}{18.504}$	$\frac{18.376}{18.379}$	$\frac{18.376}{18.379}$
C	5/8 - 11	1/2 - 13	1/2 - 13	1/2 - 13	3/8 - 16	1/2 - 13	1/2 - 13
D	10	8	8	8	12	8	8
F	17 1/4	17 1/4	17 1/4	17 1/4	17 5/8	17 1/4	17 1/4
I	1	1	1 3/32	1	1	1	1
J	8 55/64	16 55/64	16 1/8	16 1/8	16 3/4	16 1/8	16 1/8
K	4 1/64	4 1/64	3 57/64	3 15/16	4 41/64	3 15/16	3 15/16
L	$\frac{3.1495}{3.1503}$	$\frac{3.1495}{3.1503}$	$\frac{2.8345}{2.8353}$	$\frac{3.1495}{3.1503}$	2 29/32	$\frac{3.1495}{3.1503}$	$\frac{3.1495}{3.1503}$
M	27/32	27/32	3/4	1 11/16	1 15/32	1 11/16	1 11/16
N	19 1/2	19 1/2	20	20	19 1/2	20	20
O	3 11/16	3 11/16	4 1/64	4 13/64	3 5/16	4 13/64	4 13/64
P	3/16	3/16	11/32	5/16	7/32	5/16	5/16
Z	$\frac{4.6860}{4.6094}$	$\frac{4.6860}{4.6094}$	$\frac{4.6860}{4.6094}$	$\frac{4.6860}{4.6094}$	$\frac{4.6860}{4.6094}$	$\frac{4.6860}{4.6094}$	$\frac{4.6860}{4.6094}$

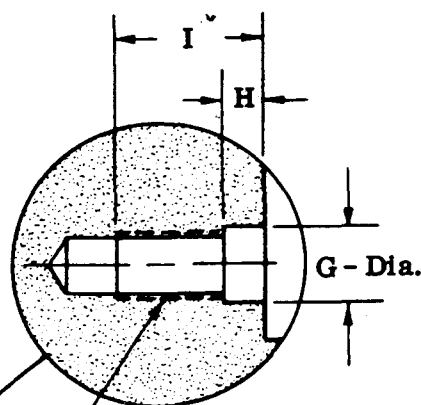
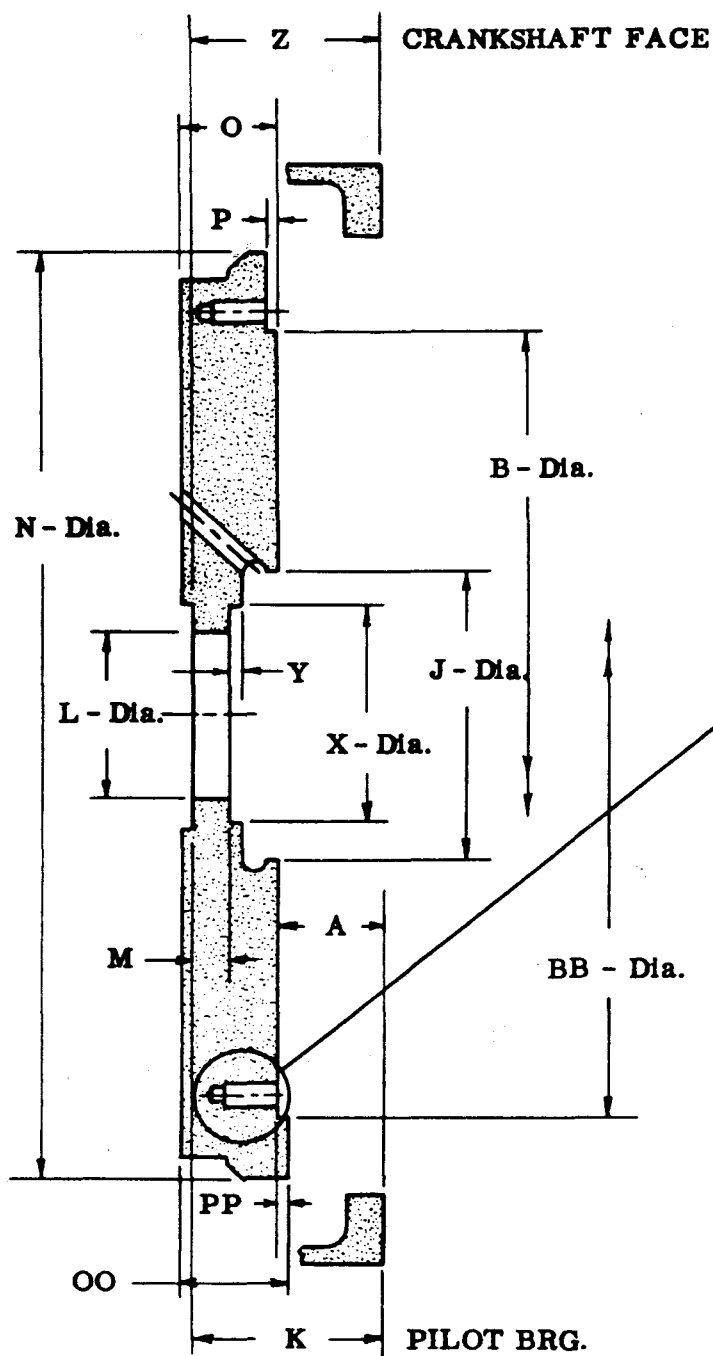
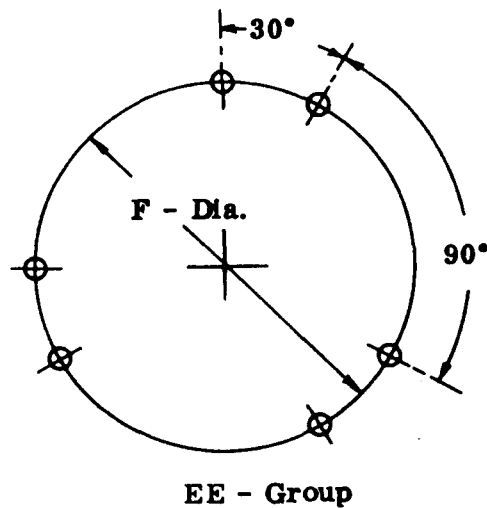
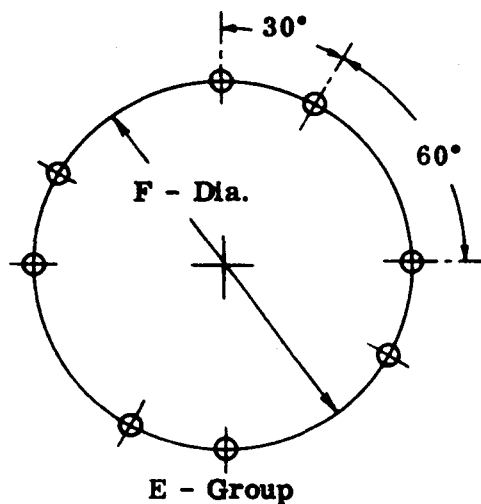
(a) made from 5181663

Drive Ring Type
110 - 1A1

	FLYWHEEL NUMBER					
	5134949	5136256(a)				
A	2-13/16	1				
B	$\frac{14.001}{14.004}$	$\frac{18.376}{18.379}$				
C	1/2-13	1/2-13				
D	8	16				
F	12-3/4	17-1/4				
I	-	1				
J	8-3/4	16-1/8				
K	4-41/64	3-15/16				
L	2 7/8	3-15/16				
L	2 7/8	$\frac{3.1495}{3.1503}$				
M	1-1/32	1-11/16				
N	18.80	20				
O	2-3/8	4-13/64				
P	9/32	5/16				
Z	$\frac{4.6860}{4.6094}$	$\frac{4.6860}{4.6094}$				

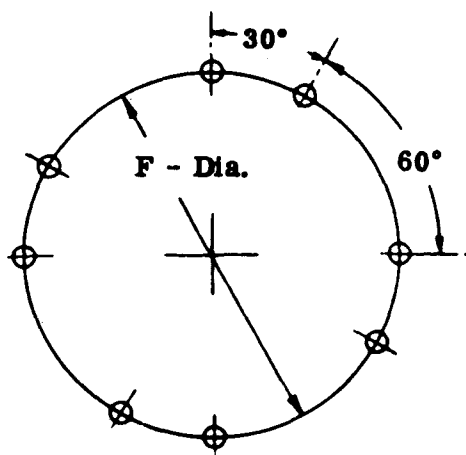
(a) - Made from 5181663

Drive Ring Type
110-1A2

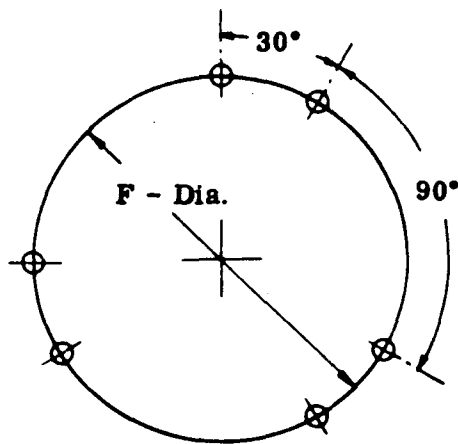


- C - Tap
 - D - No. Holes
 - E - or EE - Hole Grouping (a)
 - F - Bolt Circle
- (a) When E & EE are blank in table, holes D are equally spaced

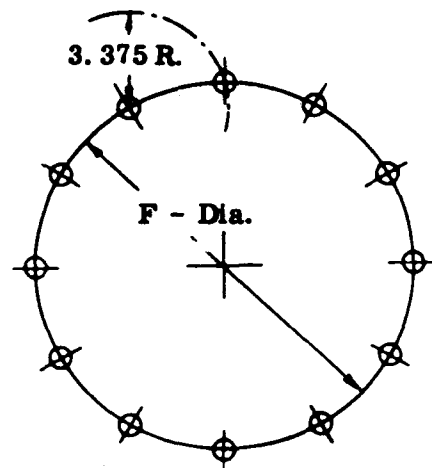
	FLYWHEEL NUMBER						
	5181765						
A	2 25/64						
B	$\frac{16.249}{16.252}$						
BB	-						
C	5/16 - 18						
D	12						
E	-						
EE	-						
F	16 29/32						
G	-						
H	-						
I	13/16						
J	8 11/16						
K	4 41/64						
L	$\frac{2.8345}{2.8353}$						
M	1 25/64						
N	18 51/64						
O	2 33/64						
OO	-						
P	5/32						
PP	-						
X	6 1/2						
Y	1/8						
Z	$\frac{4.6860}{4.6094}$						



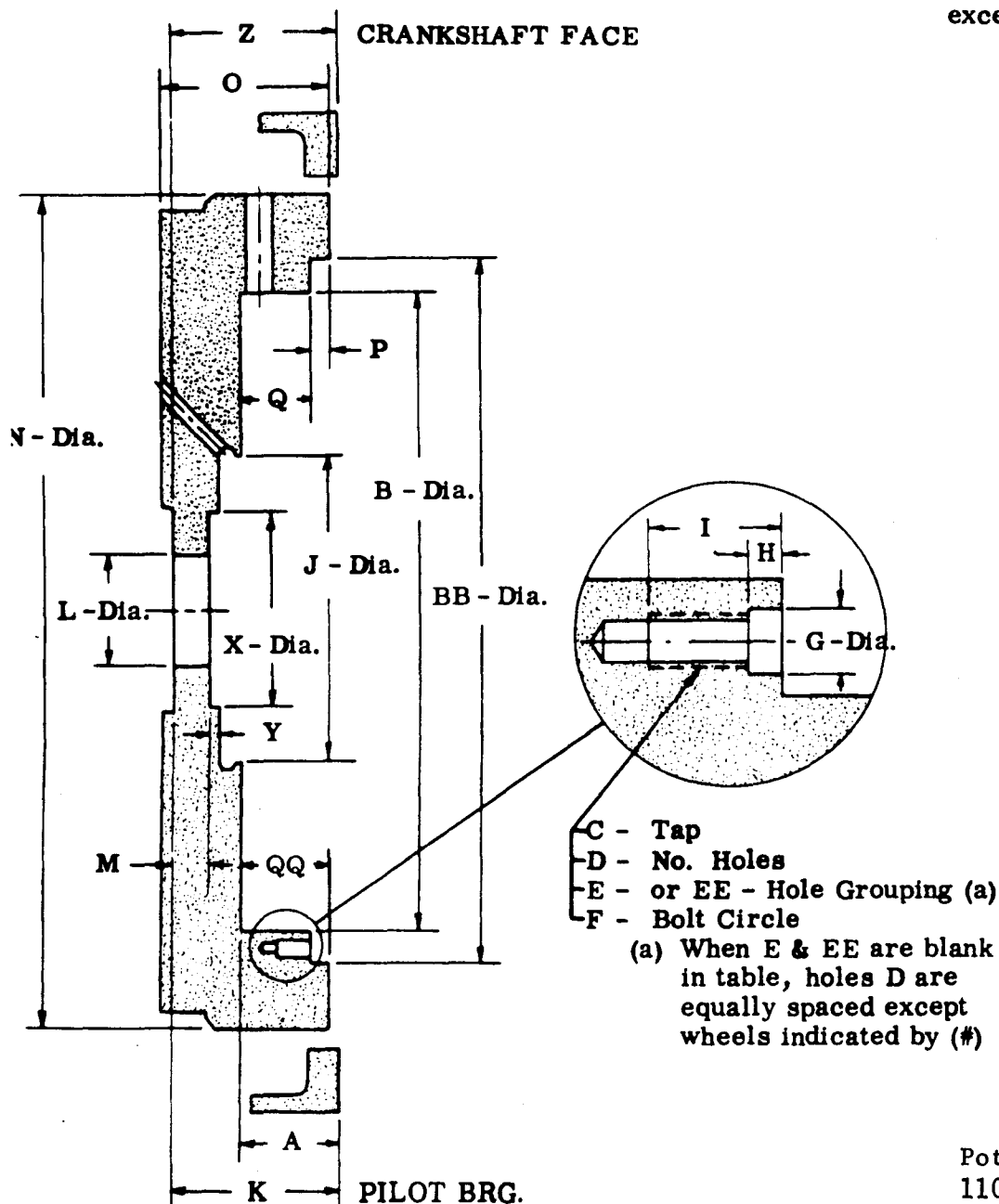
E - Group



EE - Group



Note: Wheels indicated by (#) in table have 12 holes equally spaced except one as shown.

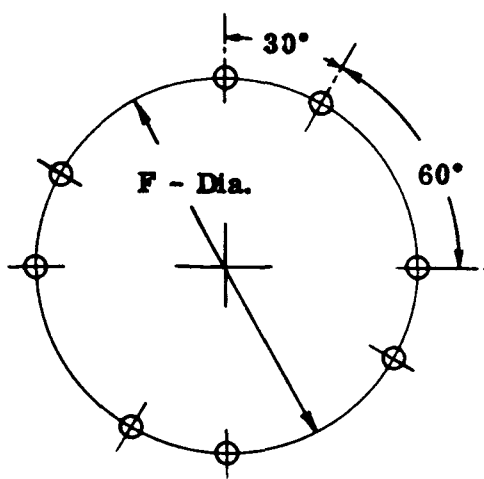


Pot Type - Single Plate
110 - 1D

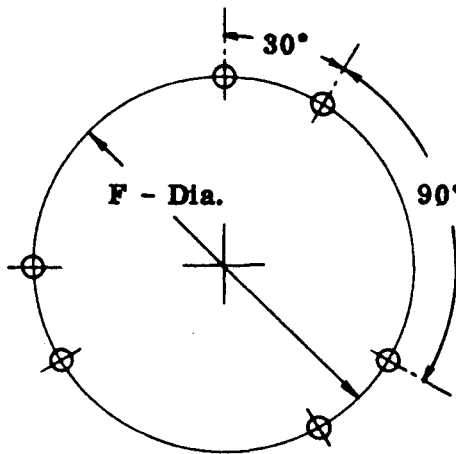
	FLYWHEEL NUMBER						
	5183545(p)	5181683	5189549				
A	2	1 53/64					
B	16 7/8	$\frac{18.001}{18.004}$	$\frac{11.002}{11.004}$				
BB	$\frac{18.500}{18.503}$		17 15/16				
C	3/8 - 16	3/8 - 16	1/2 - 13				
D	12	12	6				
E	-	-	-				
EE	-	-	-				
F	17 5/8	18 3/4	10				
G	-	-	-				
H	-	-	-				
I	3/4	7/8	THRU				
J	9 7/8	6 27/64	6				
K	4 41/64	3 61/64	3 7/8				
L	$\frac{2.8345}{2.8353}$	$\frac{2.8345}{2.8353}$	$\frac{2.8345}{2.8353}$				
M	13/16	3/4	1 1/4				
N	20	19 39/64	19 39/64				
O	3 11/16	3 39/64	3 1/4				
P	1/4	1/4	25/64				
Q	1 1/4	-	-				
QQ	-	1 7/32	1 25/64				
X	6	-	-				
Y	11/32	-	-				
Z	$\frac{3.9860(p)}{3.9094}$	$\frac{4.6860}{4.6094}$	$\frac{4.6860}{4.6094}$				

(p) Requires 5.40 wide flywheel housing

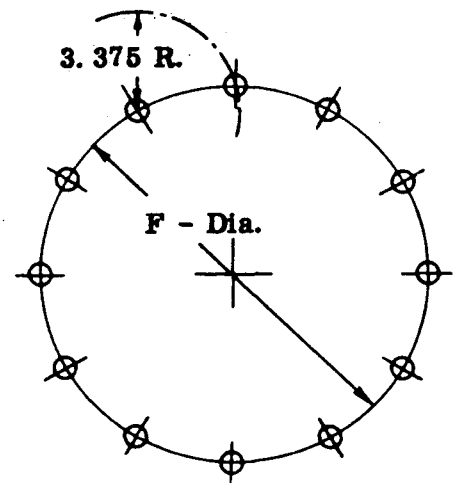
Pot Type-Single Plate
110 - 1D1



E - Group

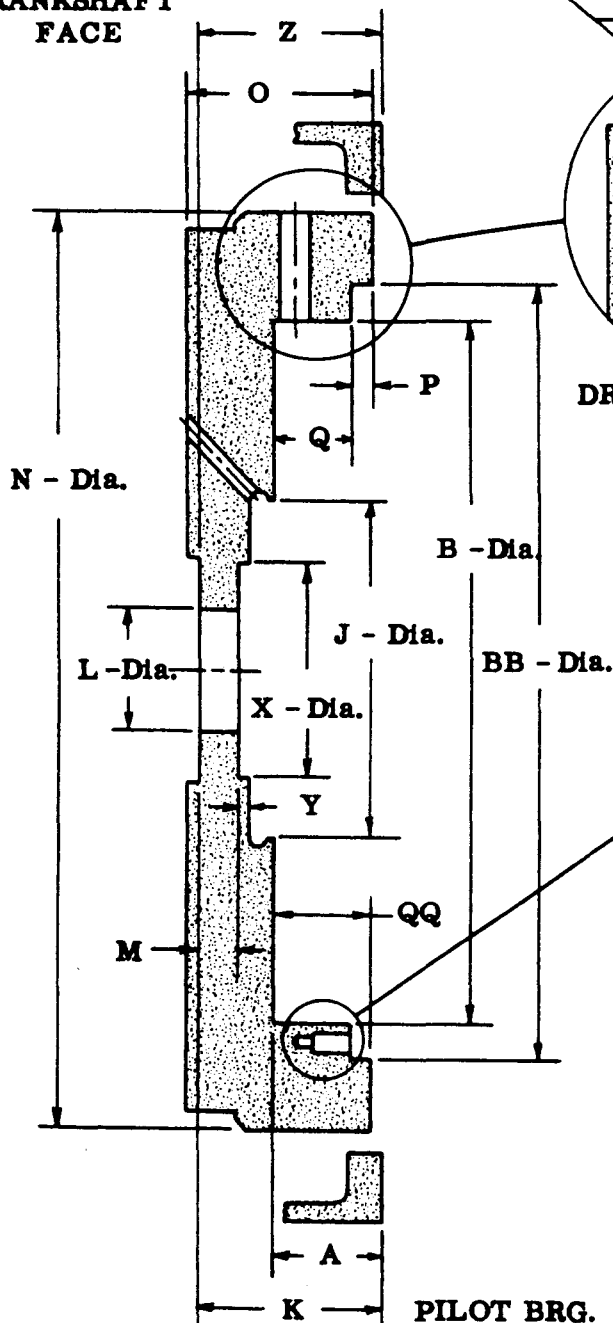


EE - Group

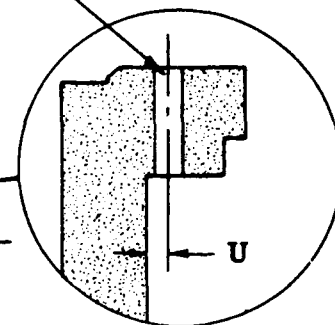


Note: Wheels indicated by (#) in table have 12 holes equally spaced except one as shown.

CRANKSHAFT
FACE

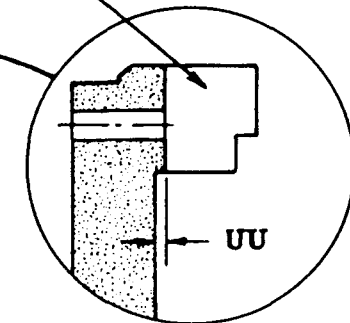


V - Ream
W - No. Holes

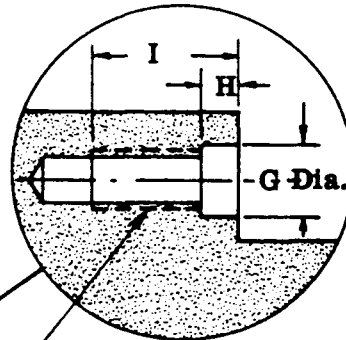


DRIVE PIN HOLE

VV - Slot Width
WW - No. Slots



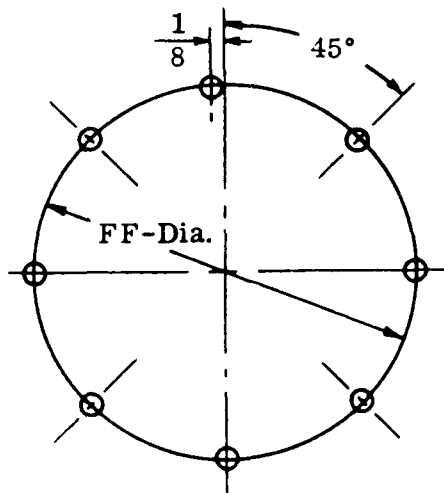
DRIVE LUG SLOT



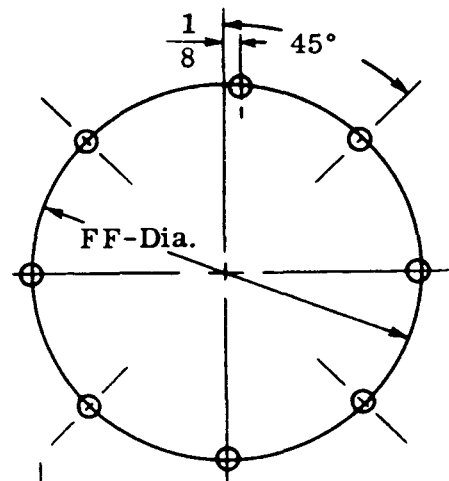
C - Tap
D - No. Holes
E or EE - Hole Grouping (a)
F - Bolt Circle

(a) When E & EE are blank in table, holes D are equally spaced except wheels indicated by (#)

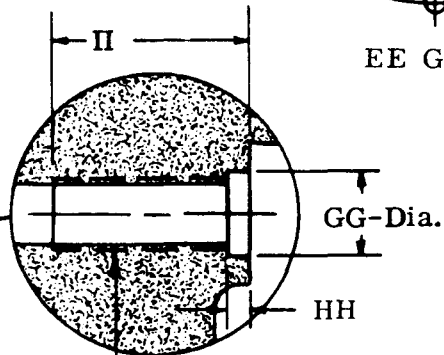
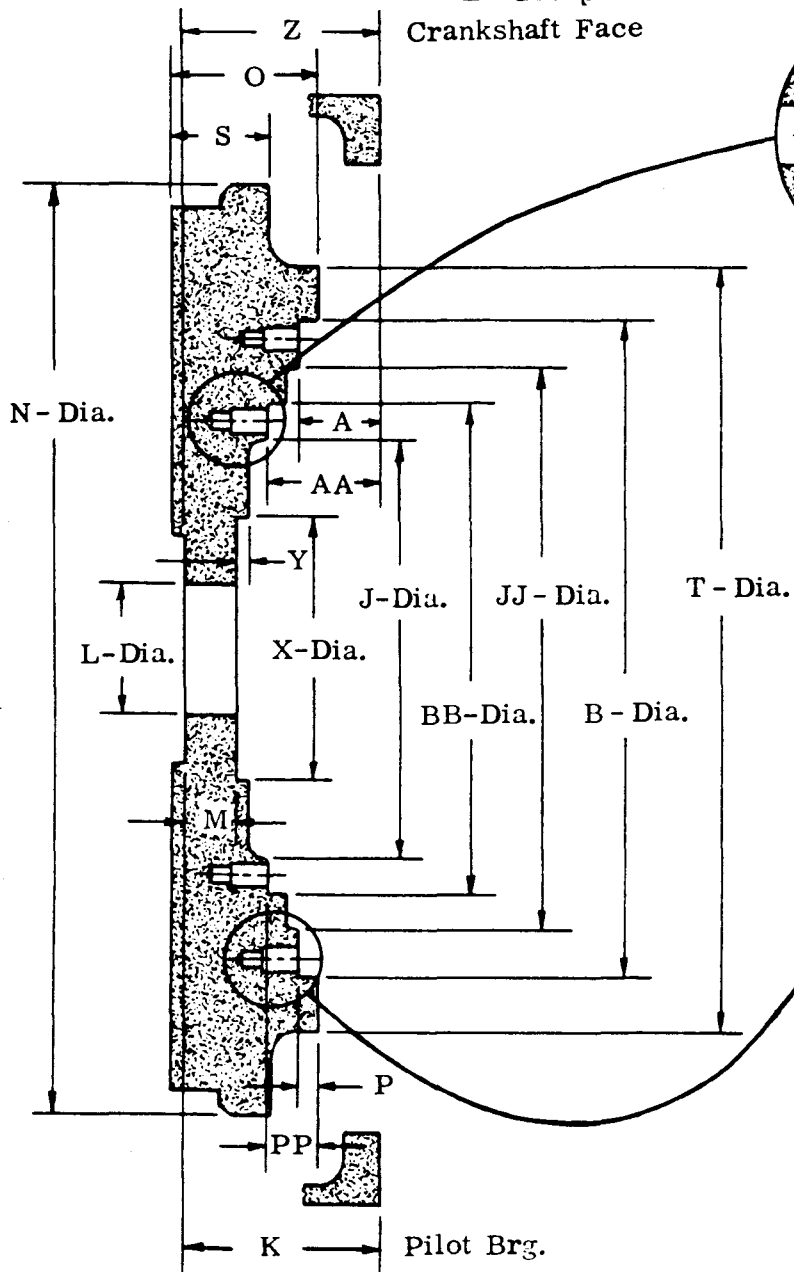
	FLYWHEEL NUMBER						
	5182998	5113988	5162794				
A	2 13/64	2 1/8	2 1/8				
B	<u>15.125</u> 15.128	<u>15.124</u> 15.127	15 1/8				
BB	-	-	<u>16.750</u> 16.752				
C	3/8 - 16	3/8 - 16	-				
D	12	12	12				
E	-	-	-				
EE	-	-	-				
F	15 7/8	15 7/8	15 7/8				
G	-	-	-				
H	-	-	-				
I	2 13/64	1 15/16	1				
J	6 1/2	7	7 5/8				
K	3 53/64	4	3 15/16				
L	<u>2.4401</u> 2.4409	<u>2.8345</u> 2.8353	<u>2.8338</u> 2.8348				
M	41/64	3/4	1 15/32				
N	19 51/64	18 3/4	18 3/4				
O	4 15/16	5 23/32	5 7/8				
P	-	1/4	5/16				
Q	-	-	-				
QQ	2 15/16	2 15/16	3 1/8				
U	3/4	3/4	55/64				
UU	-	-	-				
V	<u>.4995</u> .5005	<u>.4995</u> .5005	<u>.4995</u> .5005				
W	4	4	8				
WW	-	-	-				
X	-	-	-				
Y	-	-	-				
Z	<u>4.6860</u> 4.6094	<u>4.6860</u> 4.6094	<u>4.6860</u> 4.6094				



E Group
Crankshaft Face



EE Group



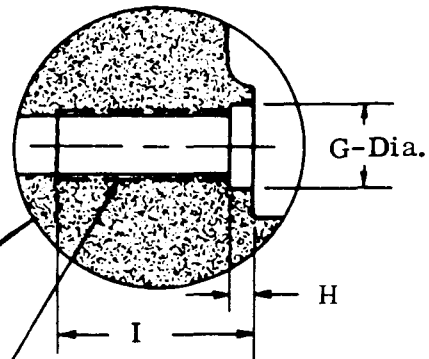
CC - Tap

DD - No. Holes

E or EE - Hole Grouping (a)

FF - Bolt Circle

(a) When E & EE are blank in table, holes DD are equally spaced.



C - Tap

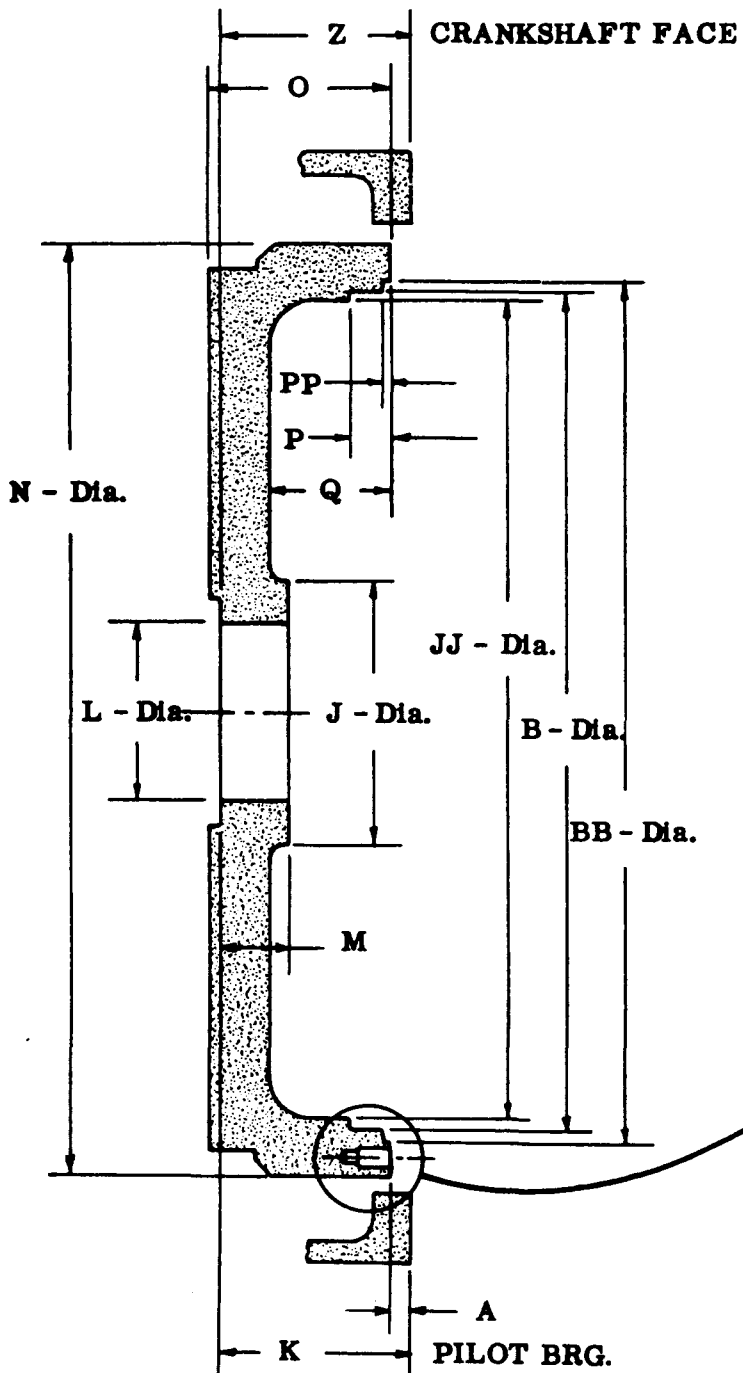
D - No. Holes (equally spaced)

F - Bolt Circle

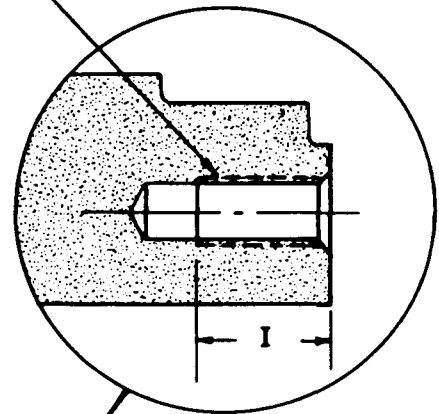
	FLYWHEEL NUMBER						
	5110556						
A	-						
AA	2 5/8						
B	-						
BB	10.252 10.256						
C	-						
CC	3/8 - 16						
D	-						
DD	8						
E	*						
EE	-						
F	-						
FF	9 1/2						
G	-						
GG	7/16						
H	-						
HH	1/8						
I	-						
II	1						
J	8 3/4						
JJ	-						
K	4 41/64						
L	2 7/8						
M	1 1/32						
N	18 3/4						
O	2 3/8						
P	-						
PP	3/32						
S	2 1/8						
T	12						
X	-						
Y	-						
Z	4.6860 4.6094						

* E Hole Group - See 110-1F

Flexible Hub Type
110 - 1F1

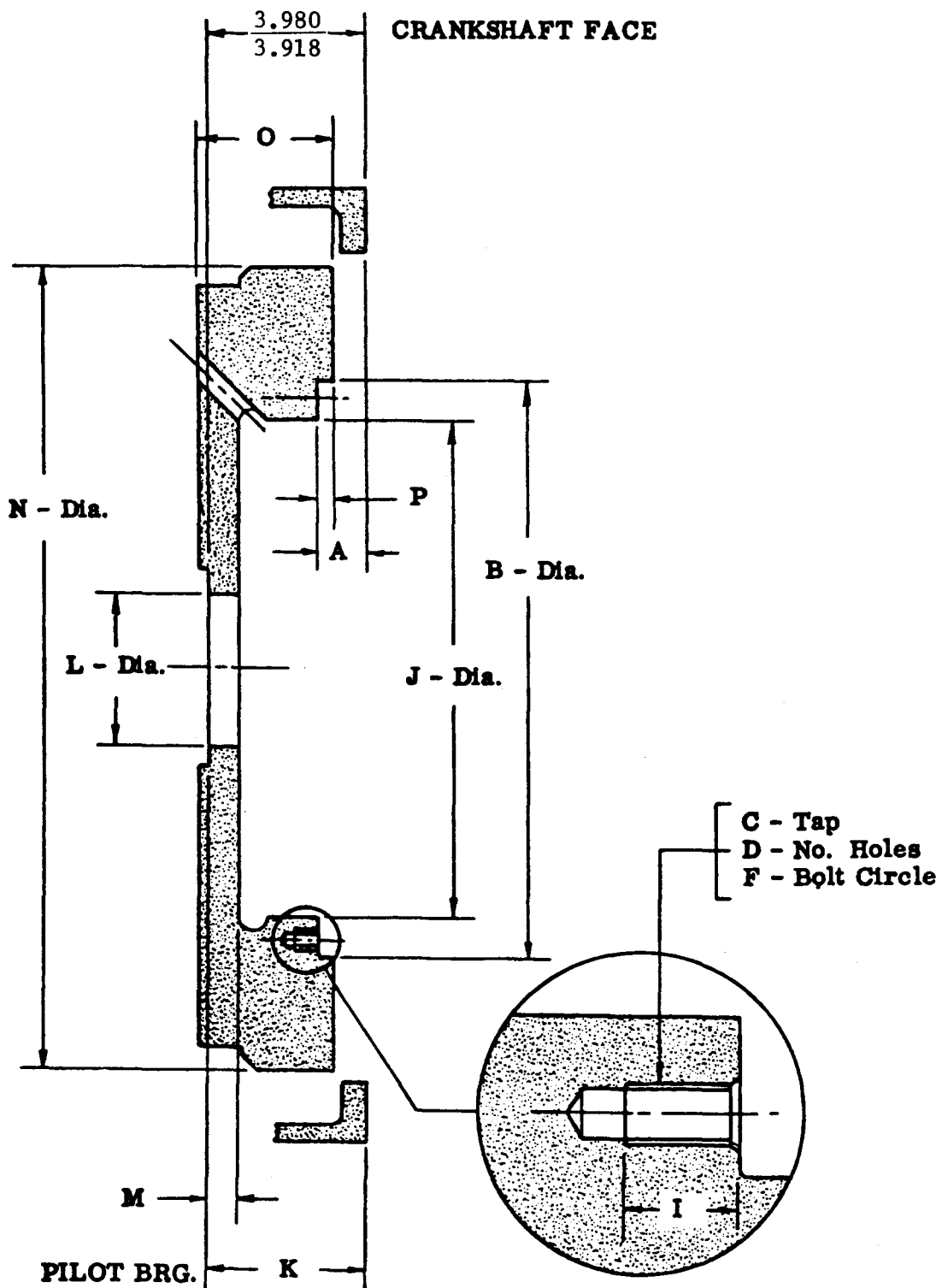


C - Tap
D - No. Holes
F - Bolt Circle



	FLYWHEEL NUMBER						
	5114173						
A	27/64						
B	17.625 17.630						
BB	-						
C	3/8 - 16						
D	24						
F	18 3/4						
I	3/4						
J	6						
JJ	-						
K	4 41/64						
L	2 29/32						
M	1 29/64						
N	20						
O	4 31/64						
P	7/8						
PP	-						
Q	2 5/8						
Z	4.6860 4.6094						

Hydraulic Coupling
110 - 1H1



Drive Ring Type

149 - 0A

	FLYWHEEL NUMBER					
	5141690	5146461		5101697		5143884(b)
A	1.39	.63	2.07	2.41		2.14
B	<u>22.501</u> 22.505	<u>22.501</u> 22.505	<u>18.999</u> 19.002	<u>11.129</u> 11.126		<u>18.874</u> 18.877
C	5/8-11	5/8-11	3/8-16	5/8-11		21/32
D	12	12	12	10		12
F	21.375	21.375	18.12	9.751		20.312
I	1.26	1.26	.76	1.06		Thru
J	19.62	19.62	7.25	7.25		9.88
K	-	3.83	3.83	3.83		3.95
L	(a)	<u>3.1483</u> 3.1491	<u>3.1483</u> 3.1491	<u>3.1483</u> 3.1491		2.36
M	.96	.84	.84	.84		.96
N	24.50	24.50	24.50	24.50		23.56
O	3.31	3.75	3.75	3.75		2.40
P	.50	.18	.19	.26		.38

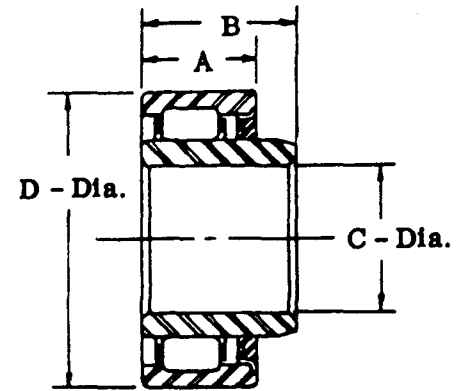
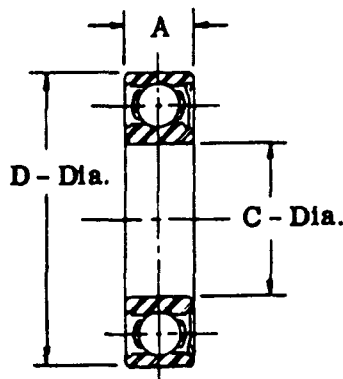
(a) has bushing
(b) coupling for electric drive vehicles

Drive Ring Type

TOLERANCES

I.D. +.0000
 -.0004
 A- O.D. +.0000
 .0005

I.D. +.0000 Radial
 -.0002 Loading
 B- O.D. +.0000 Groove
 -.0004



* Superceded

Superceded by #	Number	PART NO	TYPE	SINGLE or DOUBLE ROW	SHIELD SINGLE or DOUBLE	SEALED	FIT	NOMINAL DIMENSIONS				TOLERANCE
								A	B	C	D	
	1	900532\$	7606S10356A	S	S	-	-	.7480	-	1.1811	2.8346	A
	2	904983	Z99505X1C	S	-	Yes	-	.5906	-	.9843	2.0472	A
26	3	905644*	1306L3C	S	No	No	-	.7480	-	1.1811	2.8346	B
	4	906986	Z99506PLR1C	S	-	Yes	Loose	.6299	-	1.1811	2.4409	A
2	5	907060*	77505L1V	S	D	-	-	.5906	-	.9843	2.0472	A
	6	907084	Z99507	S	S	-	-	.6693	-	1.3780	2.8346	-
26	7	907086*	7306L1C	S	S	-	-	.7480	-	1.1811	2.8346	A
	8	907133\$	9606	S	-	-	-	.7480	-	1.1811	2.8346	-
	9	907502\$	7502	S	-	-	-	.4331	-	.5906	1.3780	-
	10	907508\$	7508	S	-	-	-	.7087	-	1.5748	3.1496	-
2	11	954410*	7505	S	-	-	-	.5906	-	.9843	2.0472	-
	12	954411*	7506LR1C	S	S	-	Loose	.6299	-	1.1811	2.4409	A
	13	954420*	7505	S	-	-	-	.6693	-	1.3780	2.8346	-
25	14	954421*	7605L1C	S	-	-	-	.6693	-	.9843	2.4409	-
26	15	954422*	7606L1C	S	-	-	-	.7480	-	1.1811	2.8346	A
26	16	954423*	3304	S	-	-	-	.5906	-	.7874	2.0472	-
	17	954425\$	1306	S	-	-	-	.7480	-	1.1811	2.8346	-
	18	954427	5606	D	-	-	-	1.1875	-	1.1811	2.8346	-
	19	954472	5507	D	-	-	-	1.0625	-	1.3780	2.8396	-
	20	954489\$	5607	D	-	-	-	1.3750	-	1.3780	3.1496	-
	21	954497\$	1304	S	-	-	-	.5906	-	.7874	2.0472	-
	22	954554\$	99605	S	-	-	-	.6693	-	.9843	2.4409	-
	23	954360\$	77605X1C	S	D	-	-	.6693	-	.9843	2.4409	A
26	24	907256*	77606	S	-	-	-	.7480	-	1.1811	2.8346	A
	25	907302	Z99605X1978	S	-	Yes	Loose	.6693	-	.9843	2.4409	-
	26	907594	Z99606X1C	S	-	Yes	-	.7480	-	1.1811	2.8346	A
	27	7450568\$	A 1527 WB	Roller	-	1-Side	-	.9650	1.3125	.9843	2.4409	A
	28	7450571\$	A 1528 WB	Roller	-	1-Side	-	1.0000	1.4375	1.1811	2.8346	A
	29	7451462	A-1526-1307TM	Roller	-	-	-	.8263	1.5625	1.3780	3.1496	-
	30	7451256	A-1526-1306 TS	Roller	-	-	-	.748	1.4375	1.1811	2.8346	-
	31	954293	77502X1C	S	D	No	-	.4331	-	.5906	1.378	-
	32	954294	88026X1KE4	S	-	-	-	.6594	-	1.0236	2.0472	A
25	33	904750*						.6693	-	.9843	2.4409	-
	34	908259	5611 L1B	D	-	-	-	1.9375	-	2.1654	4.7244	-
	35	2947905	Z99607	S	-	Yes	-	.8268	-	1.3780	3.1496	A

---- obsolete

Pilot Bearings

STARTER, RING GEAR AND FLYWHEEL HOUSING SELECTIONS

The information in this section may be of help in determining the flywheel ring gear and starter pinion to be used with a particular flywheel housing. To match the starter pinion and flywheel ring gear to the flywheel housing, you must know:

- 1) the flywheel housing starter mounting pad center distance
- 2) the starter mounting pad machining - A, B, C, A-B, A-C starter codes
- 3) the diametral pitch and number of teeth in the flywheel ring gear
- 4) the diametral pitch and number of teeth in the starter pinion
- 5) the pinion gear tooth form (gear blank size)

Both left-hand and right-hand chamfered ring gears are available for most engine models. Unchamfered ring gears are used with overrunning clutch starters. Chamfered ring gears are used in applications where more positive starter engagement is required. These include:

- Unattended automatic start engine installations
- Remote-start systems where the operator cannot hear the engine cranking
- Air-started engines
- All Series 149 engines
- Applications where an occasional butt engagement may cause a problem

IMPORTANT:

Because of the many variables involved in starter selection (starter nose piece-to-ring gear clearance, starter and shifting mechanism-to-engine clearance, starter mounting pad position, etc.), it is not practical to list all the starter part numbers used with individual flywheel housings.

NOTE:

Detroit Diesel Allison recommends that all new starter applications be cleared through the Electrical Section of Application Engineering.

TWO METHODS CAN BE USED TO CHOOSE A STARTER

METHOD 1

Step 1. Open the FLYWHEEL HOUSING DATA BOOK (Sales Tech Data Book V, Vol. 2) to the tab marked with the required engine series and flywheel housing SAE size. (In the case of our example, this is tab "L-71, #1"). Page thru this section until you find the drawing of the flywheel housing previously selected (5136473).

Step 2. Note the following information on the drawing:

- the starter center distance (10.854")
- the starter nose piece code under "Starter" (A or B)

Step 3. Turn to the "Starter Pinion, Flywheel Ring Gear, and Flywheel Starter Mounting Hole Center Distance Combination Chart" in the Flywheel Data Book (this section). Locate the following information on this chart:

- the flywheel housing size and engine series in the first column (SAE #1, L-71)
- the starter center distance obtained from the flywheel housing drawing (10.854")
- the flywheel ring gear number (5184773)

Step 4. Jot down the data shown for the required starter pinion gear. (In this case the pinion must have 11 teeth on a 12 tooth form (11/12), 6/8 pitch, and a type "A" starter nosepiece code.)

Step 5. Turn to the "Electrical Starter Assembly Chart" in this section and locate the following information:

- the engine series and rotation (71, RH)
- the system voltage (12 volt)
- the type of electrical system: grounded (G) or insulated (I)-(in this case the system is insulated).
- the pinion gear pitch (6/8)
- the pinion gear teeth and form (11/12)
- the starter nose piece code (A 322) (SEE NOTE BELOW)

When all of this information lines up, the required starter can be found in the extreme left-hand column (1114081 - see "Example")

NOTE: In the starter nosepiece codes, the letter prefixes A, B, C, E and W refer to the position of the starter mounting pad in relation to the pinion opening in the nosepiece. Starter pad positions are identified as follows:

“A” starter pad type - a line drawn between the centers of the two inboard bolt holes is parallel to the open sides of the nosepiece (see illustration). “A” starters can be indexed in 30° increments.

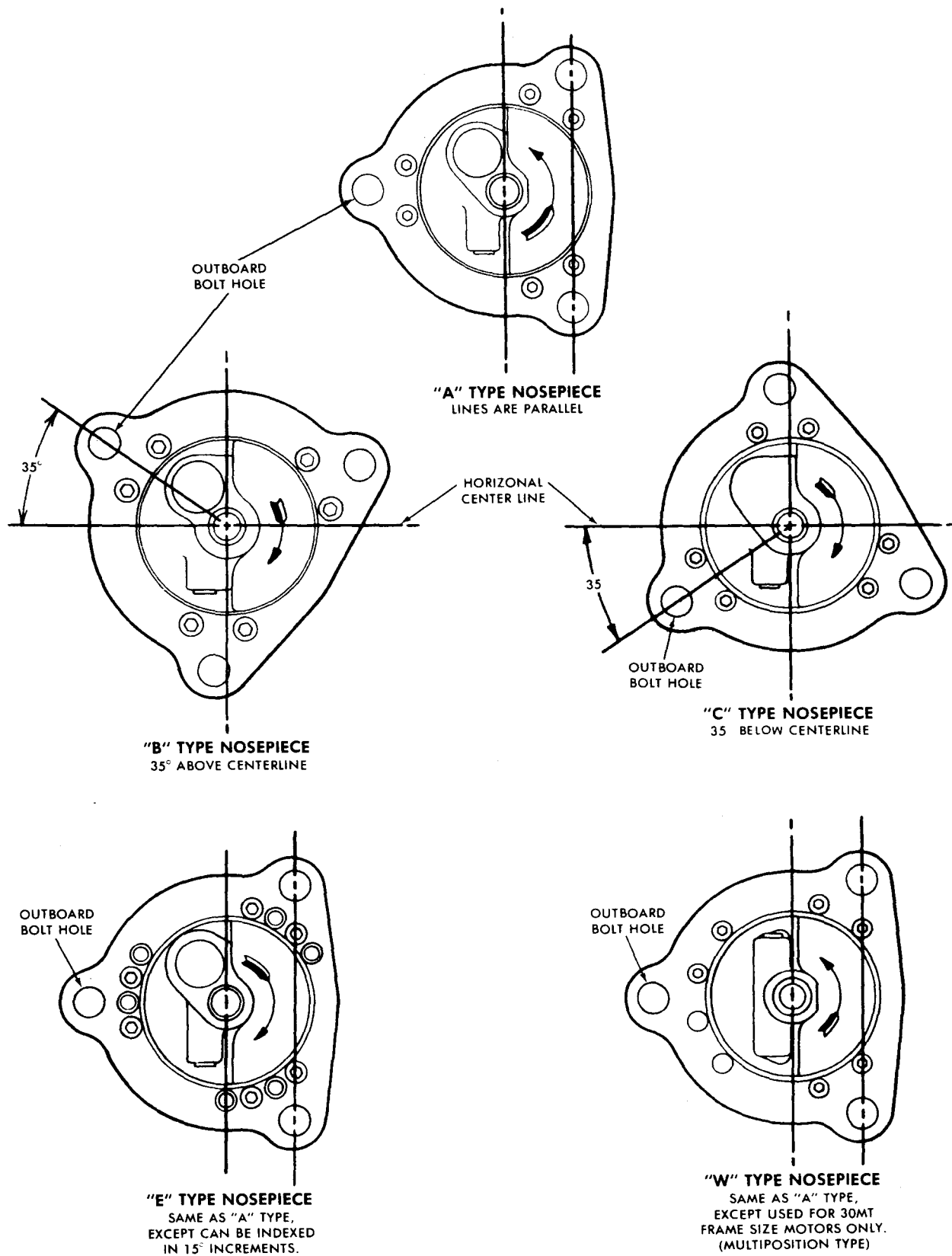
“B” starter pad type - the outboard mounting bolt hole is located 35° above the horizontal center line of the starter. “B” starters can be indexed in 30° increments.

“C” starter pad type - the outboard mounting bolt hole is located 35° below the horizontal center line of the starter. “C” starters can be indexed in 30° increments.

“E” starter pad type - is the same as “A” except the mounting pad has 12 holes and can be indexed in 15° increments.

“W” starter pad type - the same nose piece opening as the “A” type, but used for 30 MT frame size motors only. Older type 30 MT motors are re-indexable only by disassembling the starter. New type (indicated as “multi-position” on electrical starter assembly chart) may be indexed as shown on drawing SK-5885. This drawing appears at the end of this section.

STARTER NOSEPIECE CODE PREFIXES



The number following the prefix indicates the number of degrees the starter solenoid must be offset from the drive end flange in order to eliminate interference. Where interference is not a problem, an engine application may have a choice of starter.

Basically, the "P" type is for the left side of the engine, and the "S" type is for the right side.

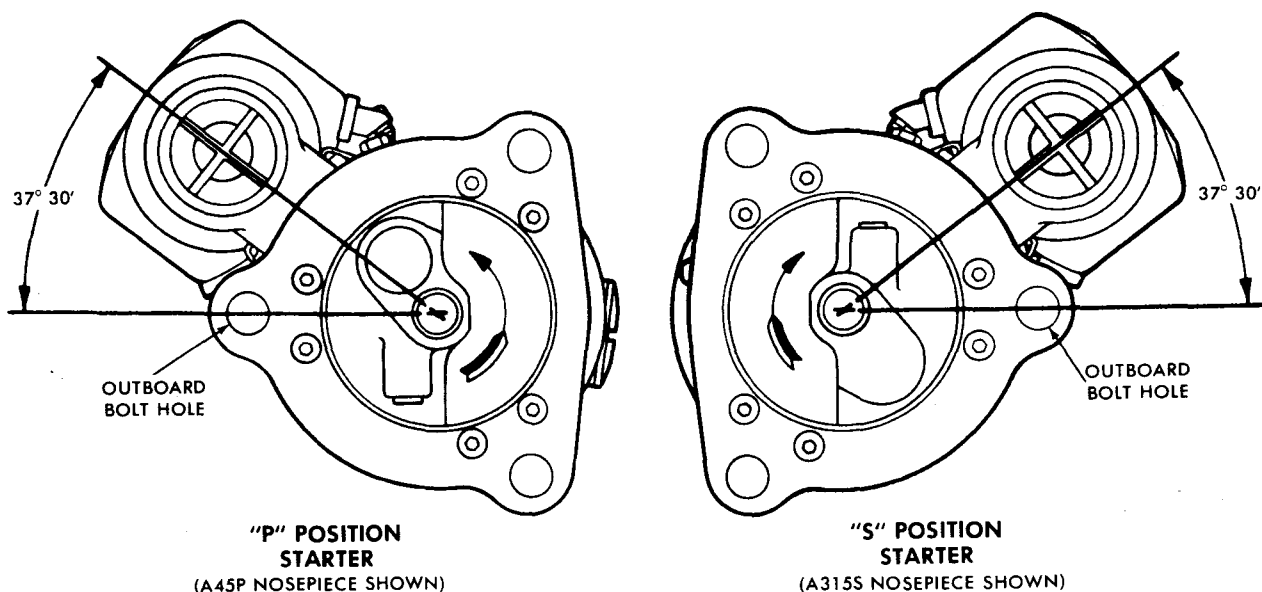
The suffix letters "P" and "S" relate to the position of the solenoid are read as follows:

A "P" POSITION starter has a solenoid offset $37^{\circ} 30'$ to the right of a line drawn between the center of the starter and the starter flange outboard mounting hole.

An "S" POSITION starter has a solenoid offset $37^{\circ} 30'$ to the left of a line drawn between the center of the starter and the starter flange outboard mounting hole.

Example: A starter with a nosepiece code of A 315 S has an "A" position mounting pad and a solenoid offset 315° from the drive end for minimal interference. The solenoid is located $37^{\circ} 30'$ to the left of the nosepiece perpendicular centerline.

STARTER NOSEPIECE CODE SUFFIXES



METHOD 2

This procedure should be used only by those familiar with the Detroit Diesel Allison UPC Group (engine assembly production parts group) coding system. Those not familiar with this system should contact the Electrical Section of Application Engineering.

Step 1. Obtain a description of the standard and optional UPC groups available on the engine model involved.

Step 2. Note the 6C3 (flywheel) group containing the flywheel previously selected.

Example: 6C3-178 contains 5182595

Step 3. Note the 6B (flywheel housing) groups listed at the end of the 6C3 description. These are the flywheel housing groups that can be used with the flywheel group selected.

Example:

6C3	178	FLYWHL NO1 LIPERLWY 15DP/RKFD15TT CLU 71 -118T UNCHAMF 10.854 CTR DIST -W6B-198, 583, 740
-----	-----	---

Step 4. Refer to the 6B groups on the model listing. Check each 6B group for a description of the flywheel housing previously selected. In the example below, 6B-198 contains the housing previously selected—an SAE #1 housing with starter on the right side, a housing center distance of 10.854" and requiring an "A" type starter mounting flange.

Example:

6B	198	HSG FLYWHL 1 START R SI CORDW/ACC HOLE71 - 10.854 CTR DIST A START MT FLG
6B	208	HSG FLYWHL 1 START R SI 71 C OR D - 10.854 CTR DIST A-C START MT FLG
6B	631	HSG FLYWHL 2 AL ST L SI INT HUB 6.71RD - 9.52 CTR DIST A-B START MT FLG

Step 5. Obtain a parts breakdown of the 6B- group and note the flywheel housing number.

Example:

Group 6B-198 contains housing number 5136473.

Step 6. Refer to the 6Y2A (starting motor) groups available on the engine model. Read the description of each group and look for the starter group that can be used with the required flywheel housing group. In the example below, starter group 6Y2A-69 uses an "A" type starter mounting flange and can be used with flywheel housing group 6B-198.

Example:

6Y	2A	69	0	MTR ELEC START 12V CW INSUL SPRAG OC -11/12T PINION 6-8 PITCH A NOSE MT FLG -W6B-35, 198, 695
6Y	2A	167	SO	MTR ELEC START 12V CW SPRAG OC GRD -11/12T PINION 6-8 PITCH C NOSE MT FLG -W6B-208, 706
6Y	2A	368	0	MTR START 12VCW OC INS HIOTPT W/POSITORK -11/12T PINION 6-8 PITCH B NOSE MT FLG -W6B-35

Step 7. Obtain a parts breakdown of the 6Y2A group selected, and find the starter.

Example:

The starter used in group 6Y2A-69 is part #1114081, a 12 volt, clockwise rotating, insulated starter with a Sprag type overriding clutch. The motor pinion gear has 11 teeth on a 12 tooth form (11/12), a 6/8 pitch, and a nose housing with an "A" mounting flange.

SUMMARY: By using the UPC group system we have found that when flywheel group 6C-178 is used with flywheel housing group 6B-198, starter group 6Y2A-69 should also be used. In terms of part numbers, when flywheel assembly 5182595 is used with flywheel housing 5136473, starting motor 1114081 should also be used.

**STARTER PINION, FLYWHEEL RING GEAR AND FLYWHEEL HOUSING
STARTER MOUNTING HOLE CENTER DISTANCE COMBINATION CHART**

FLYWHEEL HOUSING		FLYWHEEL RING GEAR			STARTER PINION		
SAE NO. AND ENGINE SERIES	STARTER CENTER DISTANCE	PART NO.	NO. OF TEETH	CHAMFER (3)	NO. OF TEETH	PITCH	TOOTH FORM
0 (V-71)	10.854	5184773	118	No	11	6/8	11/12
0 (149)		5142069	146	No	11	6/8	11/12
0 (149)		5139998	146	Yes (1)	11	6/8	11/12
0 (149)		5146386	146	Yes (2)	11	6/8	11/12
1/2 (V-71)	10.854	5184773	118	No	11	6/8	11/12
1/2 (V-71)	10.854	5166664	118	Yes (1)	11	6/8	11/12
1/2 (110)	12.270	5114370	135	Yes (2)	11	6/8	11/12
1/2 (110)	12.270	5176711	135	No	11	6/8	11/12
1/2 (110)	12.270	5178585	135	Yes (1)	11	6/8	11/12
1 (71, V-71, 110) (8V-53)	10.854	5112743	118	Yes (2)	11	6/8	11/12
1 (71, V071, 110) (8V-53)	10.854	5166664	118	Yes (1)	11	6/8	11/12
1 (71, V-71, 110) (8V-53)	10.854	5184773	118	No	11	6/8	11/12
1 (V-71) (8V-53)	9.520	5188030	102	No	11	6/8	11/12
1 (6V-53)	9.520	5116302	138	No	13	8/10	13/14
1 1/2 (V-71)	9.520	5110893	102	Yes (2)	11	6/8	11/12
1 1/2 (V-71)	9.520	5110894	102	Yes (1)	11	6/8	11/12
2 (53)	9.458	5141586	138	Yes (1)	12	8/10	12/13
2 (53)	9.458	5116302	138	No	12	8/10	12/13
2 (6V-53)	9.520	5116302	138	No	13	8/10	13/14
2 (71, V-71)	9.520	5168693(*)	103(*)	Yes (1)	11(*)	6/8	11/11(*)
2 (71, V-71)	9.520	5181776(*)	103(*)	No	11(*)	6/8	11/11(*)
2 (71, V-71) (8V-53)	9.520	5110893	102	Yes (2)	11	6/8	11/12
2 (71, V-71) (8V-53)	9.520	5110894	102	Yes (1)	11	6/8	11/12
2 (71, V-71) (8V-53)	9.520	5188030	102	No	11	6/8	11/12
2 (71)	9.603(*)	5113402(*)	103(*)	Yes (2)	11	6/8	11/12
2 (71)	9.603(*)	5168693(*)	103(*)	Yes (1)	11	6/8	11/12
2 (71)	9.603(*)	5181776(*)	103(*)	No	11	6/8	11/12
3 (53)	8.701	5136556	126	Yes (1)	12	8/10	12/13
3 (53)	8.701	5116301	126	No	12	8/10	12/13
3 (6V-53)	8.770	5116301	126	No	13	8/10	13/14
3 (71) (8V-53)	8.853	5110841	94	No	11	6/8	11/12
3 (6V-53)	8.770	5109022	93	Yes (2)	11	6/8	11/12
3 (6V-53)	8.770	5130545	93	Yes (1)	11	6/8	11/12
4 (53)	7.775	5116289	111	No	12	8/10	12/13

- (1) SAE Chamfer for Bendix type starter and R.H. rotating engine.
 (2) SAE Chamfer for Bendix type starter and L. H. rotating engine.
 (3) - Overrunning clutch type starters may use no chamfer or SAE chamfer.
 (*) - Inactive for new design and application

DE-2281-226

	STARTER NO.	STARTER SERIES	ENGINE SERIES	DRIVE	PINION DATA					SAE MTG. FLANGE
					PITCH	NO. TEETH	PITCH DIA.	PITCH DIA. (a)	OUTSIDE DIA.	
(1)	5125121 CW	35 Hyd.	12V-71, 16V-71, 12V-149, 16V-149 (two req'd.)	HDOC	6/8	11/12	1.833	2.000	2.250	3 (M)
(1)	5125122 CCW	35 Hyd.	12V-71, 16V-71, 12V-149, 16V-149 (two req'd.)	HDOC	6/8	11/12	1.833	2.000	2.250	3 (M)
(2)	6505065 CW	20 Hyd.	3, 4, 6, 6V, 8V-71, 6-110	HDOC	6/8	11/12	1.833	2.000	2.250	3 (M)
(2)	6505066 CW	20 Hyd.	2, 3, 4-53	HDOC	8/10	12/13	1.500	1.625	1.825	3 (M)
(2)	6505067 CCW	20 Hyd.	3, 4, 6, 6V, 8V-71, 6-110	HDOC	6/8	11/12	1.833	2.000	2.250	3 (M)
(2)	6505068 CCW	20 Hyd.	2, 3, 4-53	HDOC	8/10	12/13	1.500	1.625	1.825	3 (M)
	5125733 CW	20 Hyd.	6V-53	HDOC	8/10	13/14	1.625	1.750		3 (M)
(2)	6505070 CW	20 Hyd.	2, 3-71	HDOC	6/8	11/11	1.833	1.833	2.083	3 (M)
(3)	5126591 CCW	20 BM Air	12V-71, 16V-71, 12V-149,	B	6/8	12	1.833	2.000	2.250	3
(3)	9139306 CW	20 BM Air	12V-71, 16V-71, 12V-149	B	6/8	12	1.833	2.000	2.250	3
	5132585 CCW	150 BM Air	2, 4, 6, 6V, 8V-71 & 16V-149 (two req'd.)	B	6/8	11/12	1.833	2.000	2.250	3 (M)
(4)	5132584	150 BM Air	2, 4, 6, 6V, 8V-71 & 16V-149 (two req'd.)	B	6/8	11/12	1.833	2.000	2.250	3 (M)
	5178355 CCW	Gasoline	4, 6-71	B	6/8	11/12	1.833	2.000	2.250	3
	5178356 CW	Gasoline	3, 4, 6, 8V, 12V-71, 6-110	B	6/8	11/12	1.8333	2.000	2.250	3

(a) - Pitch dia. for layout

(M) - Multiposition

(B) - Bendix Interia Drive

HDOC - Heavy Duty Overrunning Clutch (Delco or Bendix Positork)

(1) - Chart 5125067 -D, 5125088 - R.

(2) - Chart 6505064 - R, 6505053 - R.

(3) - Chart 5126589 - D.

(4) - Chart 5181712 - D.

HYDRAULIC, AIR AND
GASOLINE STARTERS

S3-60-1

ELECTRICAL STARTER ASSEMBLY CHART

STARTER NO. & ROTATION	ENGINE SERIES & ROTATION		DRIVE	Voltage	G	I	PINION DATA		SAE Mtg Flange	Starter Nosepiece Code*
							Pitch	Teeth & Form Size		
1113216 CW	2, 3, 4-53	RH	OC	12	X		8/10	12/13	3	W 90
1113228 CCW	2, 3, 4-53	LH	OC	12	X		8/10	12/13	3 (M)	W 330
1113229 CW	2, 3, 4-53	RH	OC	12	X		8/10	12/13	3 (M)	W 270
(6) 1113236 CW	2, 3, 4-53 Special	RH	OC	12	X		8/10	12/13	3	W 30
1113237 CW	2, 3, 4-53	RH	OC	12	X		8/10	12/13	3	W 330
(2) 1113406 CW	2, 3-71	RH	HDOC	12		X	6/8	11/12	3 (M)	E 308 P
(1) 1114128 CW	8V-71, 8V-53	RH	POCD	12		X	6/8	11/12	3 (M)	A 75 S
(1) 1114059 CCW	8V-71, 8V-53	LH	HDOC	12		X	6/8	11/12	3 (M)	A 45 P
(1) 1114161 CW	8V-71, 8V-53	RH	POCD	12		X	6/8	11/12	3 (M)	B 75 P
1114077 CW	6V-53	RH	HDOC	12		X	8/10	13/14	3 (M)	A 45 S
1114078 CW	3, 4, 6-71, 6V-71	RH	HDOC	12		X	6/8	11/12	3 (M)	A 45 P
1114079 CCW	6V-53	LH	HDOC	12		X	8/10	13/14	3 (M)	A 45 P
1114080 CCW	2, 3, 4, 6-71, 6V-71	LH	HDOC	12		X	6/8	11/12	3 (M)	E 322 S
1114081 CW	2, 3, 4, 6-71, 6V-71	RH	HDOC	12		X	6/8	11/12	3 (M)	A 322 S
1114083 CW	3, 4, 6-71, 6V-71	RH	HDOC	12	X		6/8	11/12	3 (M)	C 285 S
1114084 CW	3, 4, 6-71, 6V-71	RH	HDOC	12	X		6/8	11/12	3 (M)	A 285 S
1114085 CW	3, 4, 6-71, 6V-71	RH	HDOC	12	X		6/8	11/12	3 (M)	B 75 P
(5) 1109962 CCW	12, 16V-71, V-149	LH	HDOC	24		X	6/8	11/12	3 (M)	A 45 P
1109971 CW	12V-71	RH	HDOC	24		X	6/8	11/12	3 (M)	B 45 P
(3)(4) 1109972 CW	12, 16V-71, V-149	RH	HDOC	24		X	6/8	11/12	3 (M)	A 75 P
(5) 1109979 CW	12, 16V-71, V-149	RH	HDOC	24		X	6/8	11/12	3 (M)	E 38 P
1113162 CW	4-53	RH	OC	24		X	8/10	12/13	3	W 30
(3)(4) 1113188 CW	2, 3, 4-53	RH	OC	24	X		8/10	12/13	3	W 330
(3)(4) 1113189 CW	2, 3, 4-53	RH	OC	24	X		8/10	12/13	3	W 30
(3) 1113208 CW	2, 3, 4-53	RH	OC	24	X		8/10	12/13	3	W 330
1113221 CCW	3-53	LH	OC	24	X		8/10	12/13	3	W 330
(3)(4) 1113249 CW	3-53	RH	POCD	24	X		8/10	12/13	3 (M)	W 330
1113824 CW	2-71 thru 8V-71, 8V-53	RH	HDOC	24		X	6/8	11/12	3 (M)	A 45 P
1113846 CW	4, 6, 8V-71	RH	HDOC	24		X	6/8	11/12	3 (M)	A 82S
(3)(4) 1113847 CW	2-71 thru 8V-71, 8V-53	RH	HDOC	24		X	6/8	11/12	3 (M)	A 45 P
(3)(4) 1113854 CW	2-71 thru 8V-71	RH	HDOC	24		X	6/8	11/12	3 (M)	B 285 P
1113872 CW	2-71 thru 8V-71	RH	HDOC	24		X	6/8	11/12	3 (M)	A 75 S
1113873 CW	6V-53	RH	HDOC	24		X	8/10	13/14	3 (M)	A 315 S
1113874 CCW	2-71 thru 8V-71, 8V-53	LH	HDOC	24		X	6/8	11/12	3 (M)	A 45 P
1113876 CW	3, 4, 6-71	RH	HDOC	24		X	6/8	11/12	3 (M)	A 315 S
(3)(4) 1113904 CW	3, 4-53	RH	HDOC	24		X	8/10	12/13	3 (M)	E 278 P
1113938 CW	2-71 thru 8V-71	RH	HDOC	24		X	6/8	11/12	3 (M)	B 68 P
(3) 1113940 CW	6V-53	RH	HDOC	24		X	8/10	13/14	3 (M)	A 315 S
(3)(4) 1113985	6V-53	RH	HDOC	24		X	8/10	13/14	3 (M)	E 292 P
(3)(4) 1114717	4-53	CW	HDOC	24		X	8/10	12/13	3 (M)	E 338 P
(5) 1109963 CW	12, 16V-71, V-149	RH	HDOC	32		X	6/8	11/12	3 (M)	A 45 P
(5) 1109964 CCW	12, 16V-71, V-149	LH	HDOC	32		X	6/8	11/12	3 (M)	A 45 P
1113878 CW	2, 3, 4, 6, 6V, 8V-71,	RH	HDOC	32		X	6/8	11/12	3 (M)	A 45 P
1113889 CCW	2, 3, 4, 6, 6V, 8V-71, 8V-53	LH	HDOC	32		X	6/8	11/12	3 (M)	A 45 P

POCD = Positork OC Drive
OC = Overrunning Clutch

HDOC = Heavy Duty

G = Grounded I = Insulated

* Refer to drawing 5128467 except for L-53 starters

(M) = Multiposition nosepiece, sealed for wet fly hsg.

(1) = Special high output for truck replacement engine

(2) = Short frame for 2, 3-71

(3) = Fungus & Corrosion resistant

(4) = Submersion proof Military

(5) = Two per engine for 12V, 16V-149

(6) = Sealed for wet fly hsg.

(C) = Code C Nosepiece Special

(B) = Code B Nosepiece Special

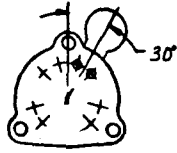


FIG. 1

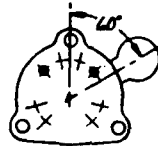


FIG. 2

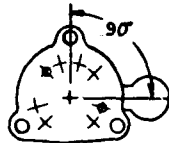


FIG.3

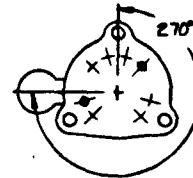


FIG. 4

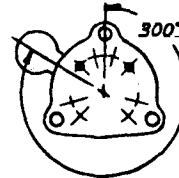


FIG. 5

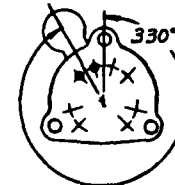
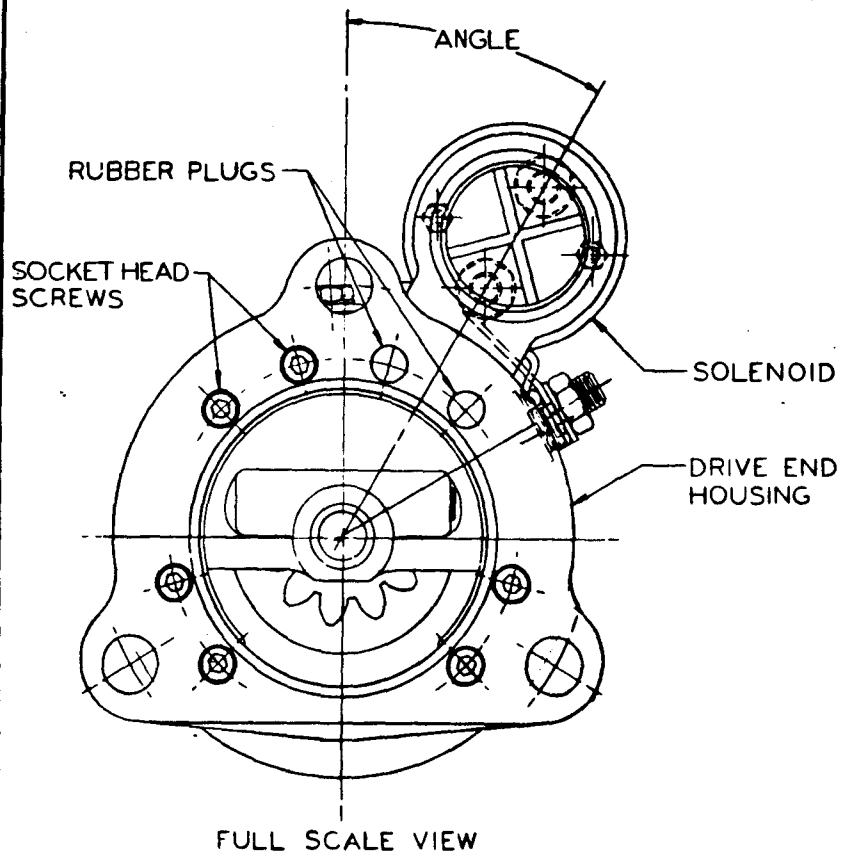


FIG. 6



SOLENOID REPOSITIONING PROCEDURE

1. REMOVE SIX SOCKET HEAD SCREWS
& TWO RUBBER PLUGS.
- 2-TURN DRIVE END HOUSING TO ANGLE
SHOWN ON APPROPRIATE FIG.
- 3-INSTALL SIX SOCKET HEAD SCREWS &
TWO RUBBER PLUGS AS SHOWN ON
APPROPRIATE FIG.
- 4-TIGHTEN SCREWS TO 7-11 FT. LBS.
TORQUE.

[illegible]

SK 5885

LATEST
SERVING DATE 10-18-73

DO NOT SCALE - ERRORS MUST BE REPORTED

THE FOLLOWING ITEMS APPLY UNLESS OTHERWISE SPECIFIED:

TOLERANCE ON DIMENSIONS LOCATING FINISHED SURFACES ± .005

FINISHED DIAMETERS HAVING COMMON CENTERLINE MUST BE CONCENTRIC WITHIN ± .010 T.Y.

FINISH ALLOWANCES: F1 DEDUCT, F2 = .5X, ETC. LOCATING POINTS (X) MUST BE SMOOTH AND CLEAR. CATCHES, POISSONS, DRILLED AND PUNCHED HOLE TOLERANCES DESCRIBED ON DRAWING SK-1043. COUNTERSINK ALL TAPPED HOLES. EXCEPT FOR TAPERS, ALL HOLES TO BE DRILLED TO FULL DEPTH. SURFACE FINISH INDICATIONS (✓) ARE IN ARITHMETICAL AVERAGE UNITS (MICROINCHES). PART MUST BE FREE OF BURRS.

DWG. DATE 10-18-79	DR. DE. GRUBER	CHEK C. 10-20-79
SCALE 1/4"	REFERENCE	APPD.
FIRST USED	1113256 + 5128467	APPD. APPD.

MATL. SPEC. _____

NAME INSTRUCTION CHART
ELECTRIC STARTING MOTOR

PART NO. SK 5885 C

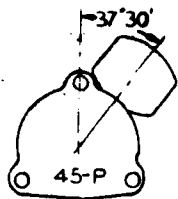


FIG. 1

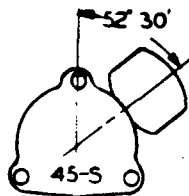


FIG. 2

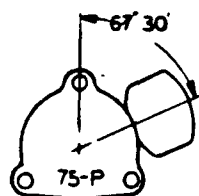


FIG. 3

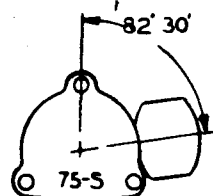


FIG. 4

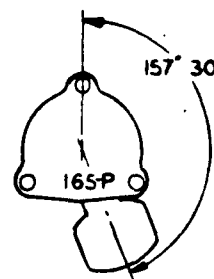


FIG. 5

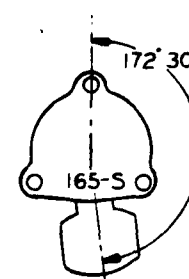


FIG. 6

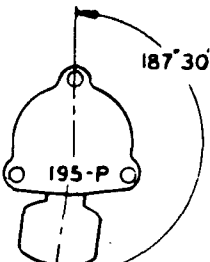


FIG. 7

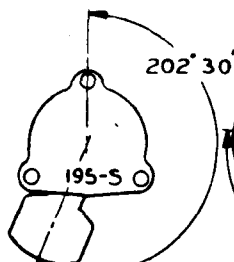


FIG. 8

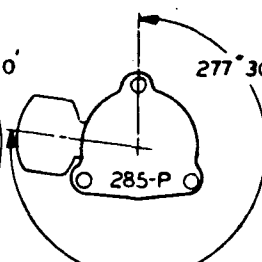


FIG.9

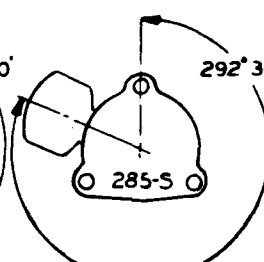


FIG.10

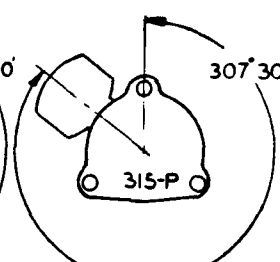


FIG. 11

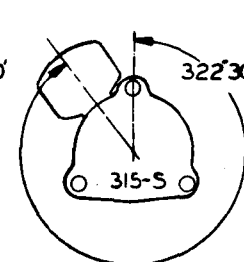
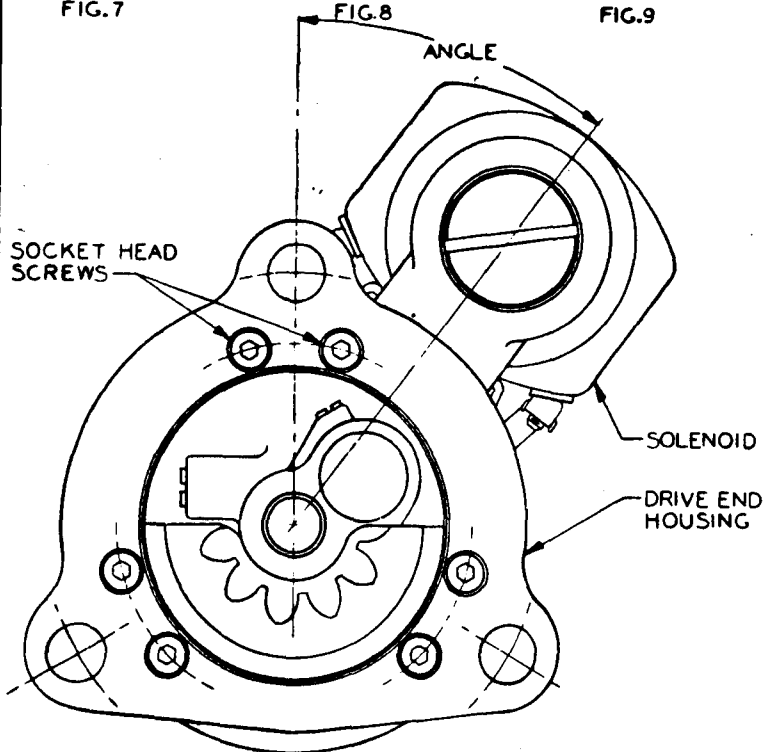


FIG.12



FULL SCALE VIEW

SOLENOID REPOSITIONING PROCEDURE.

- 1- REMOVE SIX SOCKET HEAD SCREWS (1 SHORT AND 5 LONG SCREWS).
- 2- TURN DRIVE END HOUSING TO ANGLE SHOWN ON APPROPRIATE FIG.
- 3- INSTALL SIX SOCKET HEAD SCREWS SHORT SCREW IN SHALLOW HOLE NEAREST THE SOLENOID.
- 4- TIGHTEN SCREWS TO 13-17 FT. LB. TORQUE.

[illegible]

5128467

LATEST
REVISION DATE 1-12-60

DO NOT SCALE - ERRORS MUST BE REPORTED

THE FOLLOWING ITEMS APPLY UNLESS OTHERWISE SPECIFIED:

TOLERANCE ON DIMENSIONS LOCATING
FINISHED SURFACES

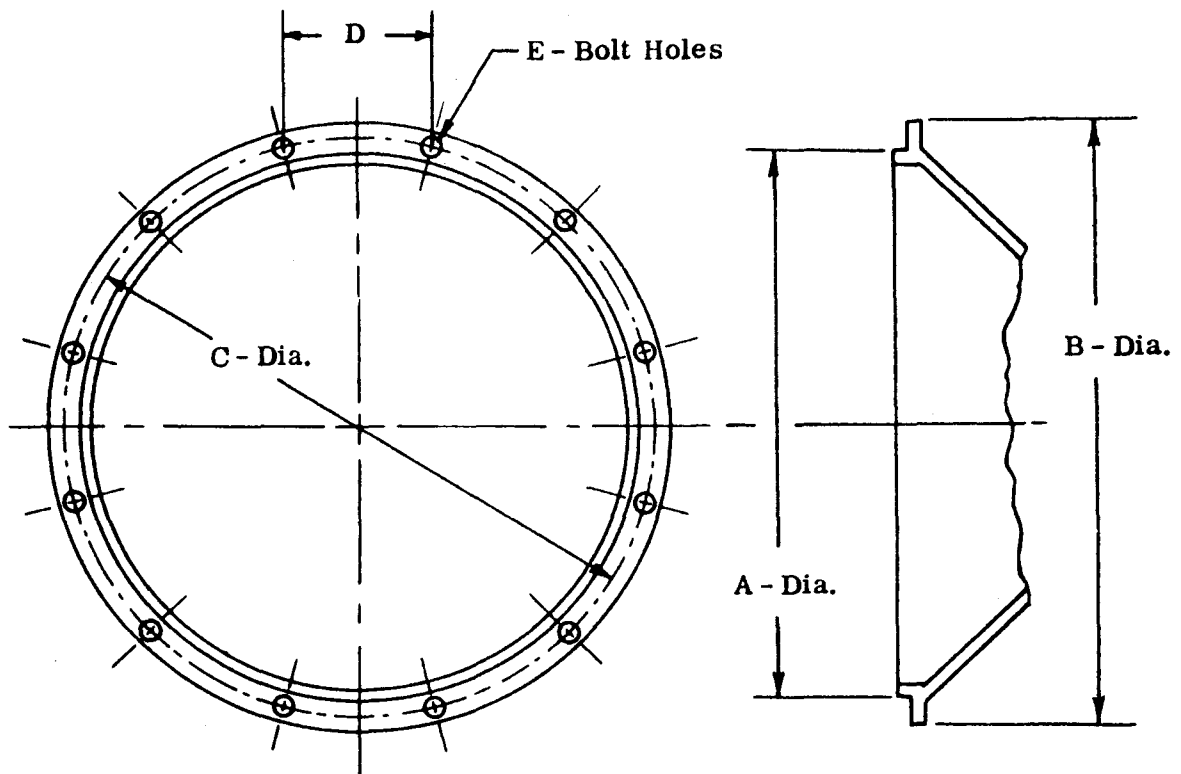
FINISHED DIAMETERS HAVING COMMON
CENTERLINE MUST BE CONCENTRIC WITHIN

FINISH ALLOWANCES: P1 DENOTES 0.02 - 0.06, ETC. LOCATING
POINTS (●) MUST BE SMOOTH AND CLEAN. CASTING, FORGING,
BURNED AND PUNCHED HOLE TOLERANCES DESCRIBED ON
DRAWING. TAPPED HOLES EXCEPT FOR TAPPED HOLES IN
PIPE THREADS, DO NOT BE LARGER THAN DIAMETER OF THREAD
SURFACE FINISH SPECIFICATIONS (✓) ARE IN AN "ASYMMETRICAL
AVERAGE SIZES" (MICROFINISH) PART MUST BE FREE OF BURR.

SWG. DATE 1-12-60	DR. PAUL R. CRENSHAW	CHK. -2-1-60
SCALE 1/4	REFERENCE SKETCH 1114056	APPO. JES - M 12-1-60
FIRST USED		APPO. JES - 2-1-60
		APPO.

INSTRUCTION CHART-ELECTRIC
STARTING MOTOR

PART NO. 5128467 C



SAE No.	A	B	C	D(b)	E	
					No.	Size
0	25 1/2	28	26 3/4	5 13/64	16	17/32
1/2	23	25 1/2	24 3/8	6 5/16	12	17/32
1(a)	20 1/8	21 3/4	20 7/8	5 13/16	12	15/32
2	17 5/8	19 3/4	18 3/8	4 3/4	12	13/32
3	16 1/8	17 3/4	16 7/8	4 3/8	12	13/32
4	14 1/4	15 7/8	15	3 57/64	12	13/32

(a) Prior to 1953 the SAE No. 1 Housing specified holes for 3/8 Dia. Bolts.

(b) Nominal Chordal Dimension for reference only.

FLYWHEEL HOUSING DIMENSIONS

Table 1

Lists the standard dimensions for the various sizes and models of flywheel housings used on D.D. engines.

Table 2

Lists the non-standard dimensions of flywheel housings by size and part number that are different from the standard dimensions as listed in Table 1.

**FLYWHEEL HOUSING DIMENSIONS
(STANDARD)**

TABLE 1

MODEL	F/W HSG. SAE NO.	F/W HSG. LENGTH	FACE F/W HSG. TO BUTT OF C/S	REAR BLOCK TO BUTT OF C/S
4-51	3	7.39	$3.9391 \pm .0442$	---
	2	7.93	$4.4791 \pm .0442$	---
2-71	2	6.7500	$4.4836 \pm .0292$	$2.807 \pm .017$
3, 4, 6-71	3	6.5312	$3.9190 \pm .0365$	$3.907 \pm .017$
	2	7.0625	$4.450 \pm .0365$	$2.907 \pm .017$
	1	6.5312	$3.919 \pm .0365$	$2.907 \pm .017$
	1-1/2	6.47	$3.863 \pm .0365$	$2.907 \pm .017$
6-110	1/2	5.40	$3.9477 \pm .0383$	---
	1	6.10	$4.6477 \pm .0383$	---
12107 (Twin 6-71)	0	---	$4.5629 \pm .044$	---
V-71	2	7.062	$4.4504 \pm .0385$	$2.806 \pm .017$
V-92	1-1/2	6.53	$3.994 \pm .0385$	$2.806 \pm .017$
	1	6.53	$3.994 \pm .0385$	$2.806 \pm .017$
	1/2	7.32	$4.7084 \pm .0385$	$2.806 \pm .017$
	0	7.80	$5.1884 \pm .0385$	$2.806 \pm .017$
L-53	4	6.30	$3.938 \pm .048$	$2.546 \pm .024$
	3	6.30	$3.938 \pm .048$	$2.546 \pm .024$
	2	6.30	$3.938 \pm .048$	$2.546 \pm .024$
6V-53	3	6.30	$3.938 \pm .048$	$2.556 \pm .024$
	2	6.30	$3.938 \pm .048$	$2.556 \pm .024$
	1	7.80	$5.438 \pm .048$	$2.556 \pm .024$
149	0	8.30	$3.949 \pm .031$	$4.351 \pm .021$
			Including end play of C/S $3.918/3.990$	Including end play of C/S $4.320/4.372$

**FLYWHEEL HOUSING DIMENSIONS
(NON-STANDARD)**

TABLE 2

MODEL	F/W HSG. SAE NO.	F/W HSG. PART NO.	F/W HSG. LENGTH	FACE HSG. TO BUTT OF CRANKSHAFT	REAR BLOCK TO BUTT OF CRANKSHAFT
2-71	2	5168184	5.8750	3.373 ± .0292	2.807 ± .017
2-53	Spec	5121170	2.36	.014 ± .048	2.546 ± .024
L-53	3	5139568	5.26	2.914 ± .048	2.546 ± .024
L-53	Spec	5125652	2.36	.014 ± .048	2.546 ± .024
L-53	Spec	5140558 (Auto)	2.36	.014 ± .048	2.546 ± .024
6V-53	2	5128794	5.85	3.494 ± .048	2.556 ± .024
6V-53	3	5134270	4.55	2.194 ± .048	2.556 ± .024
L-71	1	5156806	6.78	4.173 ± .0365	2.907 ± .017
L-71	1	5156804	6.78	4.173 ± .0365	2.907 ± .017
	1-1/2	5118943	4.09	1.483 ± .0365	2.907 ± .017
	1-1/2	5188070	4.09	1.483 ± .0365	2.907 ± .017
	1-1/2	5184040	8.22	5.612 ± .0365	2.907 ± .017
	Spec	5183093 (Gen)	7.09	4.483 ± .0365	2.907 ± .017
V-71	0	5143502	8.94	6.324 ± .0385	2.806 ± .017
V-71	1	5134513	4.06	1.444 ± .0385	2.806 ± .017
V-71	2	5122662	4.06	1.484 ± .0385	2.806 ± .017
V-71	Spec	5108483	7.11	4.494 ± .0385	2.806 ± .017
V-71	Spec (1)	5142740	5.00	2.384 ± .0385	2.806 ± .017
V-71	1-1/2	5137694	6.53	3.914 ± .0385	2.806 ± .017

OBSOLETE FLYWHEEL DATA

This section provides information on Customer machining of some obsolete Series 53 and 71 flywheels from rough blank flywheel castings. The selection of flywheel numbers is limited, but it is an alternative in some cases.

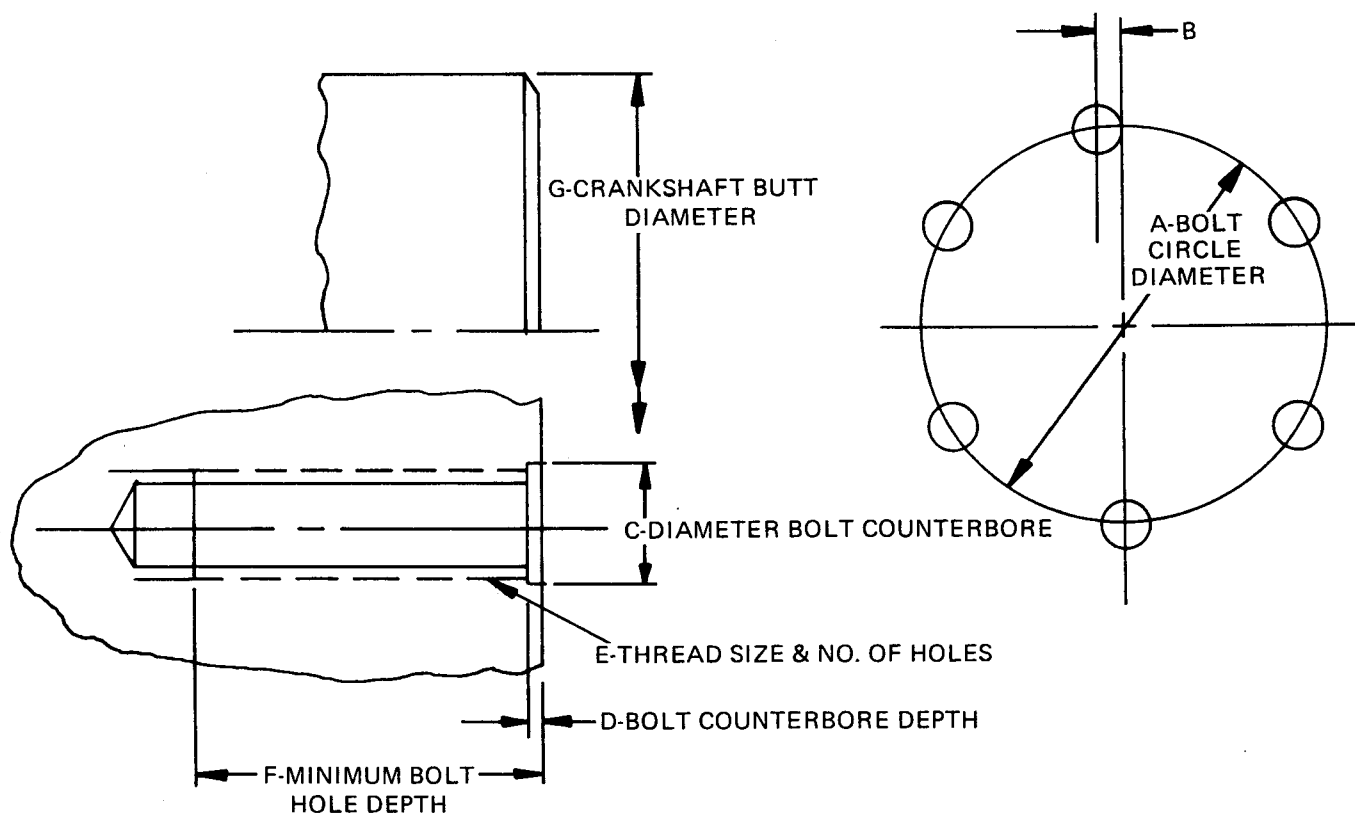
CAUTIONS WHEN USING OBSOLETE FLYWHEEL DATA:

- Proper Tolerances and Radii must be observed to insure fit while avoiding interferences and stress concentrations.
- The burst speed of the flywheel assembly should be above 2 1/2 times the engine rated speed for safety considerations.
- The flywheel assembly must be balanced statically within 1.00 inch-ounce.

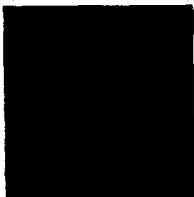
IMPORTANT

No approval or disapproval of this alternative procedure is implied. Detroit Diesel Allison can only approve what they design and fabricate. Consequently, DDA's warranty covers material and workmanship of their products only. Customers fabricating obsolete flywheels must accept responsibility for any flywheel related problems.

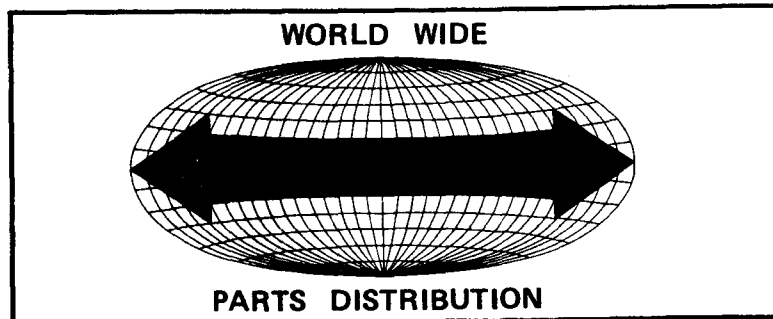
CRANKSHAFT FLYWHEEL MOUNTING FACE



ENGINE	A	B	C	D	E	F	G
2, 3, 4, 6V-53	3.25	0	.516	.31	1/2 - 20 (6)	1.68	4.00
8, 12V-53	3.75	.125	.578	.38	9/16 - 18 (6)	1.63	4.687
6V-12V-71	3.75	.125	.578	.38	9/16 - 18 (6)	1.63	4.687
8V-71	3.75	.125	.578	.38	9/16 - 18 (8)	1.63	4.687
6V, 16V-92 16V-71	4.20	0	.578	.38	9/16 - 18 (6)	1.63	5.187
8V-92	4.20	0	.578	.38	9/16 - 18 (12)	1.63	5.187
149	5.00	0	.640	1.74	5/8 - 18 (12)	3.26	5.999



Parts Information



"GENERAL DISTRIBUTION"

Section: Two - Technical

Number: 95

Date: 6-5-75

SUBJECT: Blank Flywheel Casting #5149152
Replacement For Low Volume
53 Series Flywheel

Over the years there has been several flywheel assemblies released for specific Customer applications, of which their present and past sales history cannot justify their current active status.

Recently our Project 20 Castings Committee has been reviewing inactive and low volume flywheels which have been totally impossible to procure and machine because of their inactivity.

From this review they found it necessary to obsolete many flywheel assemblies and provide the Customer with an alternative solution. So, Engineering has designed and developed a rough blank flywheel casting by combining common characteristics of several similar flywheels. The material specifications of this new casting are shown on Attachment #2 which complies with all safety requirements. This blank can now be machined into any one of the eleven flywheels shown on Attachment #1.

Upon exhaustion of current stock of mentioned flywheel assemblies, they will become obsolete. The Distributor will then place an order under the old flywheel assembly part number. He will receive a rough blank casting #5149152, a ring gear, and SD-Drawing which will provide the pertinent machining dimensions, balancing notes and other related data. In other words this change will be handled in our computerized system as a multiple supersession.

Parts Marketing Department
Parts Distribution Center, Detroit Diesel Allison Division, Romulus, Michigan

If a Distributor orders the blank casting under #5149152 he will only receive that number, then would have to order the ring gear and SD-Drawing separately. This is why it is imperative a Distributor order the obsolete F/W Assembly Part Number to avoid repeated orders for the additional parts and machining drawings.

Upon receiving the blank casting the Distributor or his Customer is to provide the finish machining requirements and attach the proper ring gear to complete the flywheel assembly.

In the near future there will be other "53" & "71" Series flywheel blank castings developed to be included in this program.

Attachment #1 is a complete list of obsolete flywheel assemblies, detail flywheels, mating ring gears, SD-Drawings, application data, etc..

Attachment #2 is a drawing of the rough blank casting #5149152.

Attachment #3 is a typical SD-drawing which will accompany the rough casting.

FLYWHEEL DATA

<u>Assembly #</u>	<u>Detail #</u>	<u>Ring Gear</u>	<u>SD-drawing</u>	<u>U.P.C. Group</u>	<u>S.A.E. #</u>	<u>Model</u>	<u>Application</u>
5109042	5108937	5116302	SD - 146	6C3-589	#2	53	Allison Converters T/C 400
5116359	5116358	5116301	SD - 141	6C3-430	#3	3-53	Fuller Mfg. Co. 12T-180 Converter 12A-120TC Converter
5130549	5130464	5116301	SD - 149	6C3-630	#3	53	Clark - CLU. Model P-200
5131635	5129457	5116302	SD - 143	6C3-652	#2	53	Long Mfg. CLU. Model 5181675 (GM-13490)
5132053	5131953	5116301	SD - 145	6C3-667	#3	4-53	Borg-Beck Converter 12331
5132976	5132179	5116301	SD - 150	6C3-683	#3	53	Long Mfg. CLU. Model 5-40-N128
5132978	5132160	5116301	SD - 144	6C3-678	#3	53	GM Truck TGH 3102 Converter
5136497	5136375	5136556	SD - 148	6C3-752	#3	3-53	Dodge Model #PF-96 CPLG.
5136532	5136413	5116301	SD - 153	6C3-753	#3	4-53	Twin Disc CLU. Model 4S1408-3TC (Ring 5808)
5142071	5141929	5116302	SD - 151	6C3-879	#2	3-53	Borg & Beck 12978 T/C
5142963	5142781	5116301	SD - 142	6C3-894	#3	53	J. I. Case Mechanics Flange



PARTS BULLETIN

PARTS MARKETING DEPARTMENT • PARTS DISTRIBUTION CENTER
DETROIT DIESEL ALLISON DIVISION • ROMULUS, MICHIGAN

Division of General Motors Overseas Distribution Corporation
Division of General Motors Interamerica Corporation



WORLD-WIDE PARTS DISTRIBUTION

Section: II - Technical

Number: 107

P.B. Ref. 1.4

Date: 11/17/76

TO: Parts Managers

SUBJ: Blank Flywheel Casting P/N's 5149203,
5149204, 5149205
Replacement for Low Volume
71 & 53 Series Flywheels

In our Parts Information Bulletin #95, Section II we introduced a rough blank flywheel casting as a replacement for our very low volume Series 53 Flywheel assemblies. This rough casting could be machined into anyone of eleven obsoleted flywheels shown in Attachment #1 of that Bulletin.

Now, this program has been expanded to include three (3) more rough blank flywheel castings to service nineteen (19) other obsolete 71 & 53 Flywheels as shown in Attachment #1 of this Bulletin.

However, please keep in mind we still have stock available on some of the obsoleted flywheel assemblies. So, please check with your D.D.A. order correspondent before you procure a rough casting.

Attachment #1 consists of a list of obsolete flywheel assemblies, rough castings, flywheel detail number, mating ring gear, SD (Service Drawing), etc.:
Attachment #2, 3, 4 are drawings of the new rough blank castings.

ATTACHMENT IFLYWHEEL DATA

<u>Ass'y. Number</u>	<u>Rough Casting</u>	<u>Detail Number</u>	<u>Ring Gear</u>	<u>SD Dwg.</u>	<u>U.P.C. Group</u>	<u>S.A.E. Number</u>	<u>Model</u>	<u>Application</u>
5109821	5149203	5109713	5116301	SD-236	6C3-610	#3	6V53	Thew Shovel Rockwell BDB 218-C Transmission
5130802	5149203	5130722	5116301	SD-235	6C3-635	#3	3/53	Borg & Beck 11 ³ / ₄ FG Hough
5135240	5149203	5135133	5110894	SD-233	6C3-728	#2	71	Dana Corp. 316 Converter
5179301	5149203	5179320	5116301	SD-234	6C3-629	#3	4/53	Clark C-268V-1 & 13CR 268V24
5118632	5149204	5118608	5112743	SD-173	-	#1	71	GM Truck-Mack Truck CL-28 (15" SP)
5128708	5149204	5118608	5184773	SD-173	6C3-335	#1	71	Mack Truck CL-28 (15" SP)
5133067	5149204	5133089	5166664	SD-176	6C3-687	#0	V71	Twin Disc CO-11554 with Lipe 17" Clu.
5137907	5149204	5137781	5184773	SD-175	6C3-788	#1	71	Galion Clu. Model 15-20 PB
5152651	5149204	5151129	5184773	SD-181	6C3-19	#1	71	Delco Generators
5152654	5149204	5151402	5184773	SD-180	6C3-17	#1	71	Delco Generators
5156346	5149204	5156345	5166664	SD-177	6C3-117	#1	71	GM Truck
5166924	5149204	5151129	5166664	SD-181	6C3-45	#1	71	Delco Generators
5173584	5149204	5173583	5184773	SD-182	6C3-105	#1	71	Twin Disc Clu. Model SL-311 (6532)

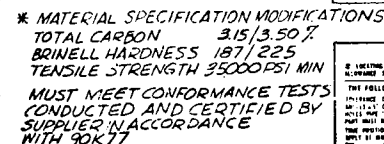
Attachment I

<u>Ass'y. Number</u>	<u>Rough Casting</u>	<u>Detail Number</u>	<u>Ring Gear</u>	<u>SD Dwg.</u>	<u>U.P.C. Group</u>	<u>S.A.E. Number</u>	<u>Model</u>	<u>Application</u>
5109405	5149205	5109343	5116302	SD-197	6C3-602	#1	6V53	Clark CT-374-1 (Austin Western)
5109460	5149205	5109385	5116302	SD-196	6C3-607	#2	6V53	Auto Car for long 13" two plate clu.
5115002	5149205	5114978	5188030	SD-195	6C3-378	#2	71	Clark 326-VO (15TT)
5129401	5149205	5173521	5110893	SD-187	6C3-548	#2	71	GM Truck
5131257	5149205	5131267	5110841	SD-192	6C3-640	#3	71	Allison 3331 Nelson Iron Wks. Flex. CLPG. B-4009
5153760	5149205	5153759	5168693	SD-189	6C3-509	#2	71	GM Truck
5153782	5149205	5153050	5188030	SD-190	6C3-21	#2	71	Allis Chalmers
5173520	5149205	5173521	5110894	SD-187	6C3-108	#2	71	GM Truck
-	5149205	5189654	-	SD-198	6C3-276	#2	6090	Lipe Rollway Clutch Model 15-1/2 TC

GENERAL MOTORS CORPORATION, DETROIT, MICHIGAN 48226



WHILE THIS DRAWING REPRESENTS THE BEST INFORMATION PRESENTLY AVAILABLE TO GENERAL MOTORS CORPORATION WITH RESPECT TO THE SUBJECT MATTER HEREIN, NEITHER GENERAL MOTORS CORPORATION NOR ANY OF ITS DIVISIONS, SUBSIDIARIES, OFFICES, OR EMPLOYEES NOR ANY OF THEM ASSUME ANY RESPONSIBILITY OR LIABILITY FOR THE ACCURACY OR RELIABILITY OF ANY STATEMENT OR OMISSION HEREIN FOR THE PERFORMANCE OR FAILURE TO PERFORM OF ANYTHING MADE IN ACCORDANCE HERewith OR FOR THE RESULTS OF ANY USE MADE THEREOF.

[illegible][illegible]

GEOMETRIC DRAWING SYMBOLS:

PLAN	TRUE POSITION	HIDE	PROJECTED
PROJECTED	PROJECTED	HIDE	PROJECTED
PROJECTED	PROJECTED	HIDE	PROJECTED
PROJECTED	PROJECTED	HIDE	PROJECTED

OWN DATE	6-16-75	SP	WASHINGTON ROCK 11-11
SCALE	FULL	RESIDENCE	APPROX 7/11
FIRST NAME			APPROX

CAST IRON G3500(b) MODIFIED

NAME
FLYWHEEL CASTING-SERVICE

PART NO
5140000

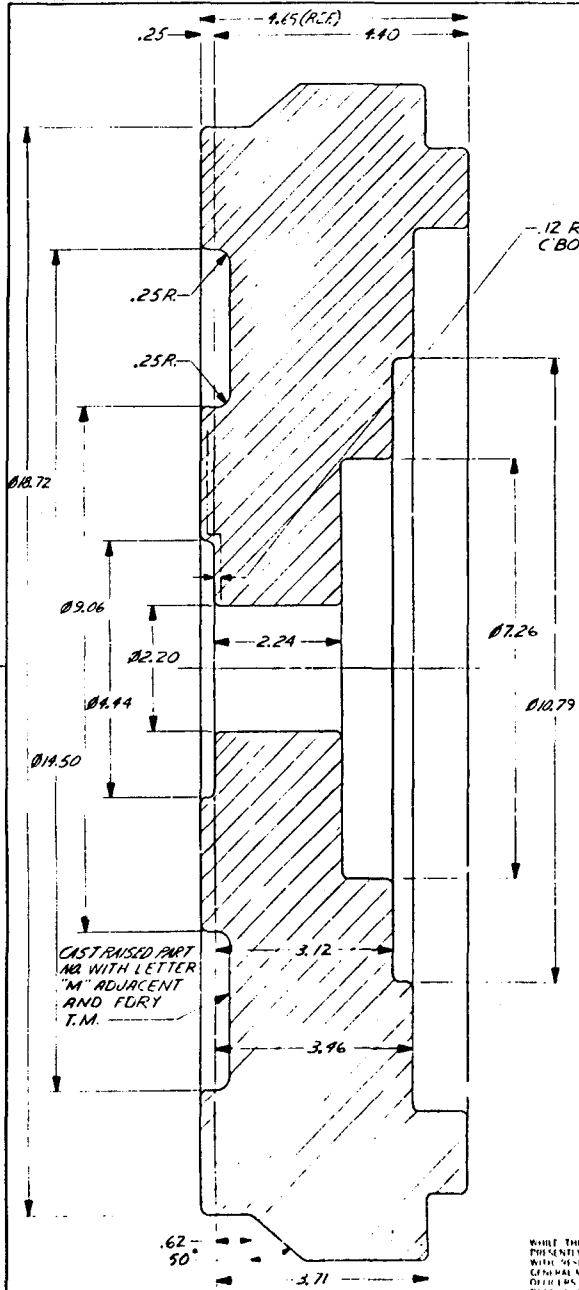
5149203	
---------	--

ALL RADII & FILLETS .12
EXCEPT AS NOTED

3149203
LARRY
EXPENSE DATE 6-15-75

THIRD ANGLE
PROJECTION

DETROIT DIESEL ALLISON DIVISION
GENERAL MOTORS CORPORATION, DETROIT, MICHIGAN 48226



WHILE THIS DRAWING REPRESENTS THE BEST INFORMATION PRESENTLY AVAILABLE TO GENERAL MOTORS CORPORATION WITH RESPECT TO THE SUBJECT MATTER HEREIN, NEITHER GENERAL MOTORS CORPORATION NOR ANY OF ITS DIVISIONS, SUBSIDIARIES, OFFICERS, OR EMPLOYEES SHALL BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ANY INFORMATION OR DESIGN HEREIN, NOR FOR THE PERFORMANCE OR FAILURE TO PERFORM OF ANYTHING MADE IN ACCORDANCE HERewith OR FOR THE RESULTS OF ANY USE MADE THEREOF.

SECT. A

*MATERIAL SPECIFICATION MODIFICATIONS

TOTAL CARBON - 3.15 - 3.50%
BRINELL HARDNESS - 187 - 255
TENSILE STRENGTH 35,000
P.S. 1 MIN.
MUST MEET CONFORMANCE TEST
CONDUCTED & CERTIFIED BY
SUPPLIER IN ACCORDANCE
WITH 90A 77

SOURCE AND MATERIAL
APPROVAL REQUIRED

ALL RADII AND FILLETS .12
EXCEPT AS NOTED

5149204

THIRD ANGLE
PROJECTION

FLYWHEEL BLANK 5149204 CAN BE
ALIGNED TO MILE

FLYWHEEL	FLYWHEEL	FLYWHEEL	FLYWHEEL	FLYWHEEL	FLYWHEEL
5118608	512742	514632	50-173		
5118609	514773	512702	50-173		
5137191	514772	512701	50-173		
5132085	514664	512747	50-176		
5134345	514664	512746	50-177		
5134402	514772	512744	50-180		
5131229	514773	512745	50-181		
5131125	514664	512746	50-181		
5131355	514772	512747	50-182		

DO NOT SCALE PRINT

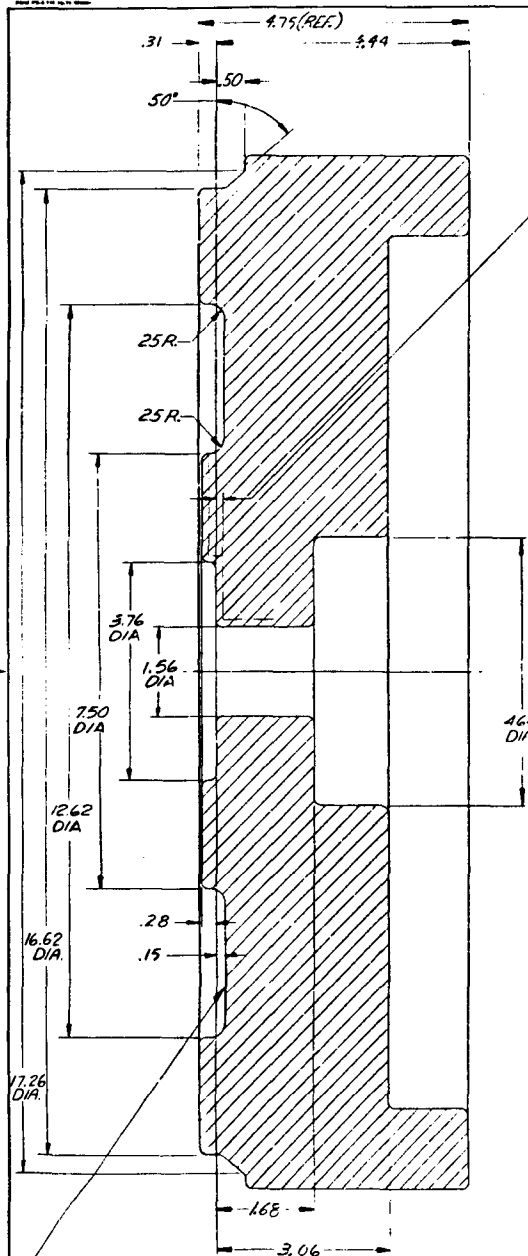
THE FOLLOWING ITEMS APPLY UNLESS OTHERWISE SPECIFIED

CAST IRON - 5149204 MODIFIED

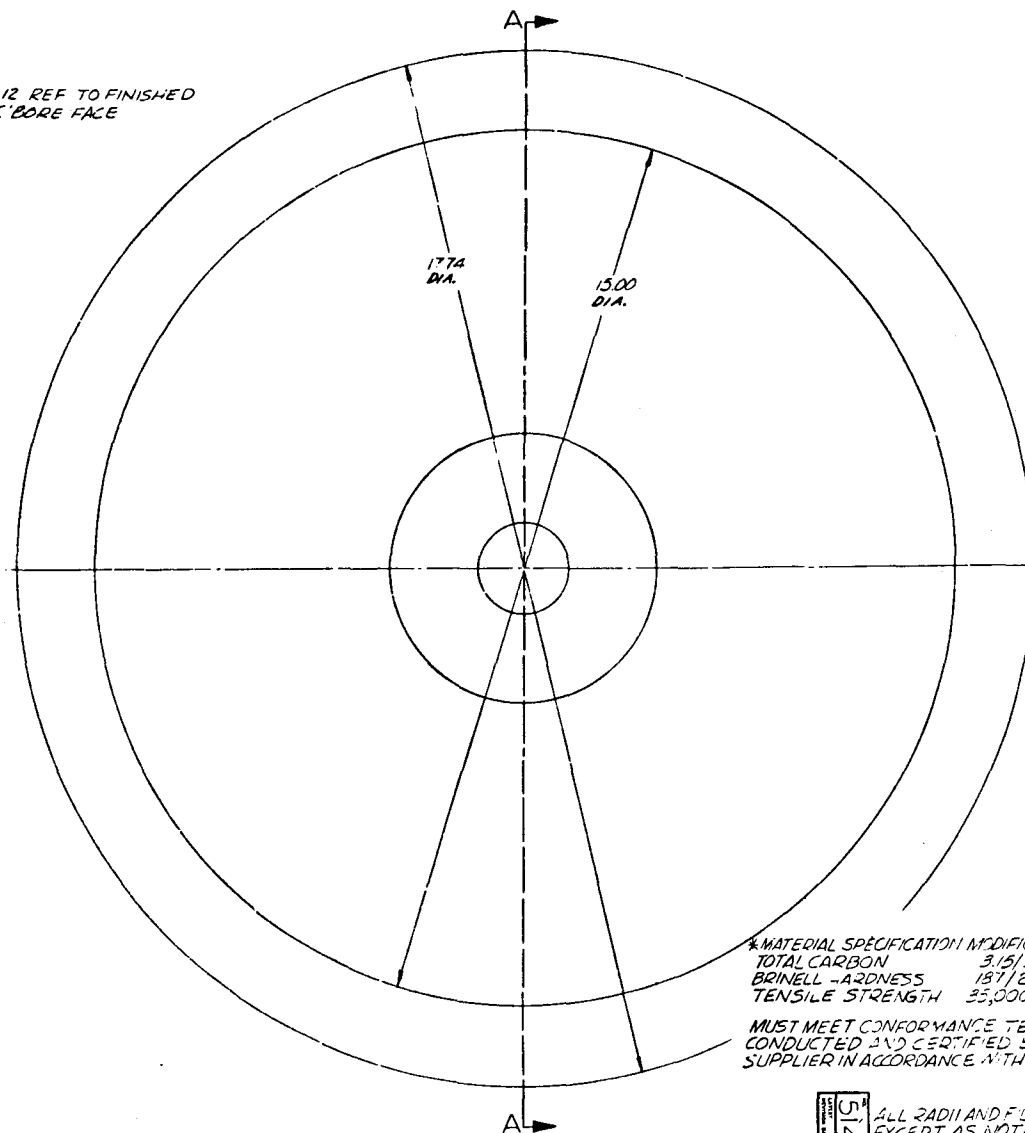
FLYWHEEL CAS - VG - SERVICE

5149204

DETROIT DIESEL ALLISON DIVISION
GENERAL MOTORS CORPORATION, DETROIT, MICHIGAN 48220



-.12 REF TO FINISHED
C'BORE FACE



* MATERIAL SPECIFICATION MODIFICATIONS
TOTAL CARBON 3.15/3.50 %
BRINELL HARDNESS 187/255
TENSILE STRENGTH 35,000 PSI

MUST MEET CONFORMANCE TESTS
CONDUCTED AND CERTIFIED BY
SUPPLIER IN ACCORDANCE WITH 90K 77

ALL RADII AND FILLETS .12
EXCEPT AS NOTED

SOURCE & MATERIAL APPROVAL REQUIRED

-CAST RAISED PART NO WITH LETTER "M" ADJACENT
AND FDRY I.M.

SECT. A

[illegible]

FLYWHEEL BLANK 5149205 .CAN BE MACHINED TO MAKE:			
FLYWHEEL	HING GEAR	FLYWHEEL GISTY	TO FINISH
5189654			SD-19
514978	5180030	5118002	SD-18
518321	5100894	5173502	SD-18
5173521	5110823	5129401	SD-18
503743	5163002	5009005	SD-18
5153753	5164433	5153160	SD-18
5153050	5162004	5137882	SD-19
5102325	5116302	5102460	SD-19
5102627	5116544	5121357	SD-19

WHILE THIS DRAWING REPRESENTS THE BEST INFORMATION
PRESENTLY AVAILABLE TO GENERAL MOTORS CORPORATION
WITH RESPECT TO THE SUBJECT MATTER HEREOF, NEITHER
GENERAL MOTORS CORPORATION, ITS DIVISIONS, SUBSIDIARIES,
OFFICERS OR EMPLOYEES NOR ANY OF THEM ASSUME ANY
RESPONSIBILITY OR LIABILITY FOR THE ACCURACY OR
RELIABILITY OF ANY STATEMENT OR DESIGN HEREIN, FOR THE
PERFORMANCE OR FAILURE TO PERFORM OF ANYTHING MADE
IN ACCORDANCE HEREWITH OR FOR THE RESULTS OF ANY USE
MADE HEREOF.

[illegible]