

**SERVICE AND
REPAIR MANUAL**

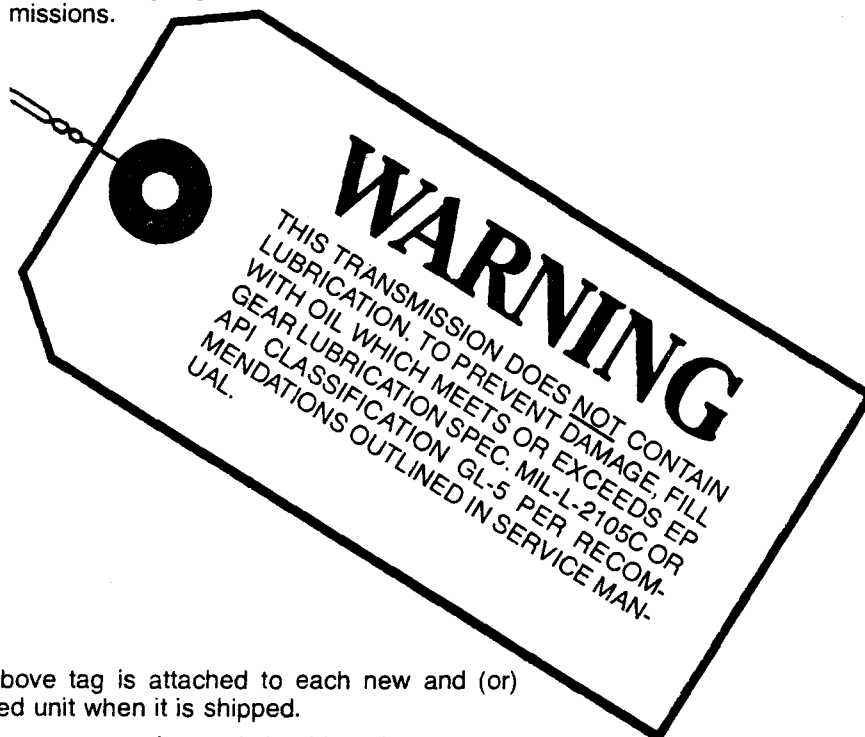
PUMP DRIVES

**FUNK : (316) 251-3400/ twx 910-740-1908/ Box 577/1211 West Twelfth/
Coffeyville, Kansas 67337**

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NOTE: This Service Manual contains data referred to by Warning Tag on New or Repaired Transmissions.



The above tag is attached to each new and (or) repaired unit when it is shipped.

It is for your protection and should not be removed until the unit has been properly serviced under the instructions of this manual.

LUBRICATION RECOMMENDATIONS

LUBRICANT TYPE:

Any Oil which meets EP Gear Lubricant Spec MIL-L-2105C
OR
API Classification GL-5

LUBRICANT GRADE:

Weather Temperature
Below -10°F (-23°C) Use 75 W
Above -10°F and up to 100°F (37.8°C) Use 80W-90
Above 100°F (37.8°C) Use 85W-140

FUNK MANUFACTURING CO.
COFFEYVILLE, KANSAS

SERVICE PROCEDURE

PUMP DRIVES

All applications subject to Funk Engineering Approval.

SERVICE:

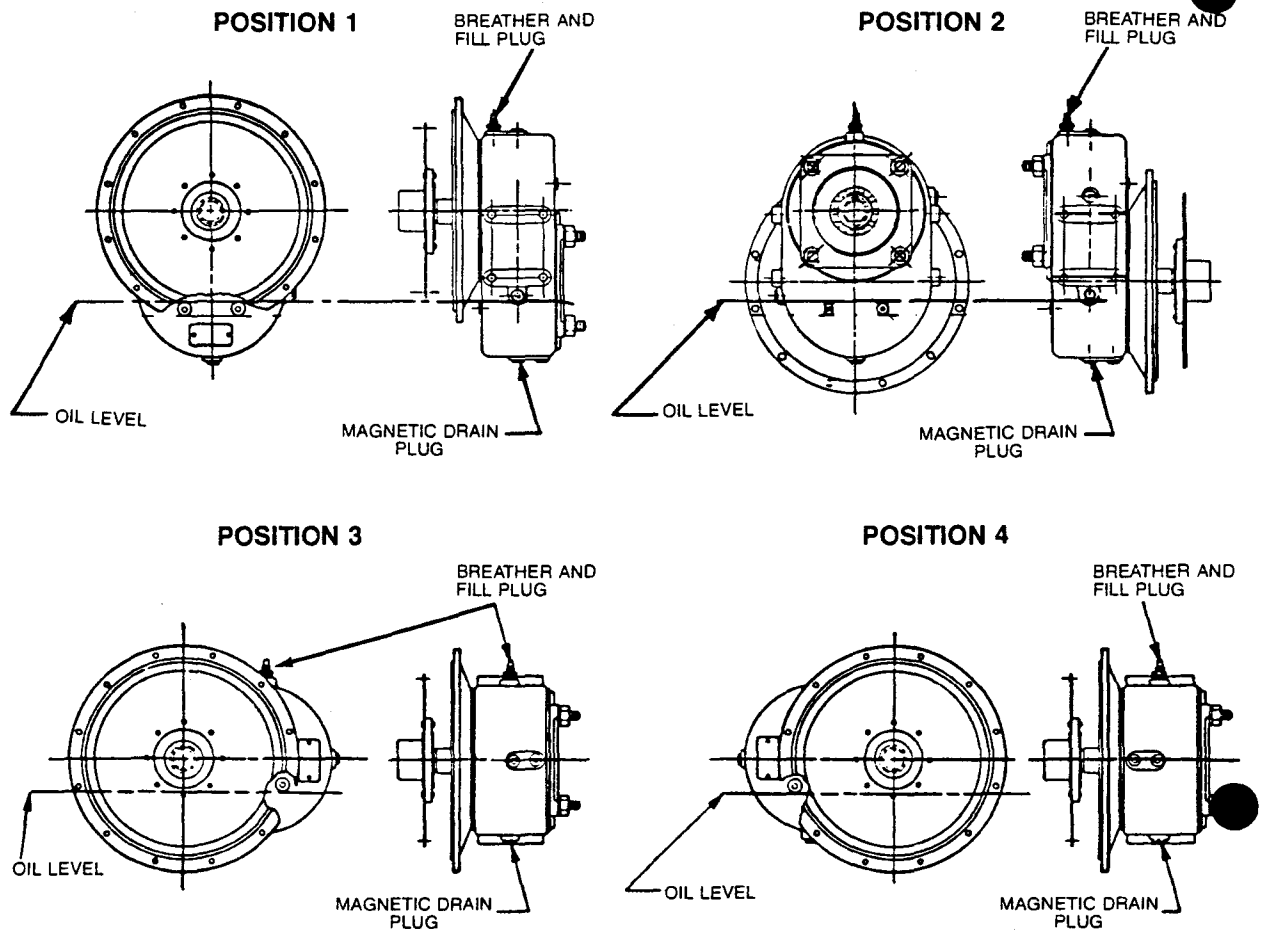
The type of service and the operating conditions will determine the maintenance interval. However, it is recommended that the oil level be checked weekly, at the same time checking for oil leaks.

Because the lubricant system is the heart of the unit, it is especially important that the oil be kept clean.

SERVICE PROCEDURE AND RECOMMENDATIONS:

1. Check unit for operational warning tags.
2. Stop engine before checking or adding oil.
3. Clean around oil fill before checking or adding oil.
4. It is recommended that lubricating oil be changed after the first 500 hours of service.
5. Thereafter, and under normal operating conditions, it is recommended that the oil be changed after every six months of operation. The oil in the unit should be changed whenever the oil level shows traces of dirt or effects of high temperature, evidenced by discoloration or strong odor.
6. Drain oil while the unit is still warm, examining for contamination or metal particles.
7. Clean all magnetic drain plugs before replacing.
8. Always use clean oil in clean containers.
9. Do not overfill. This will result in overheating and possible malfunction of the unit. Filling instructions, next page.
10. Fill with MIL-L-2105C or API-GL-5.
11. Maximum operating oil temperature 225°F (107.2°C).
 - LUBRICANT GRADE: Weather Temperature
 - Below -10°F (-23°C) Use 75 W
 - Above -10°F and up to 100°F (37.8°C) Use 80W-90
 - Above 100°F (37.8°C) Use 85W-140

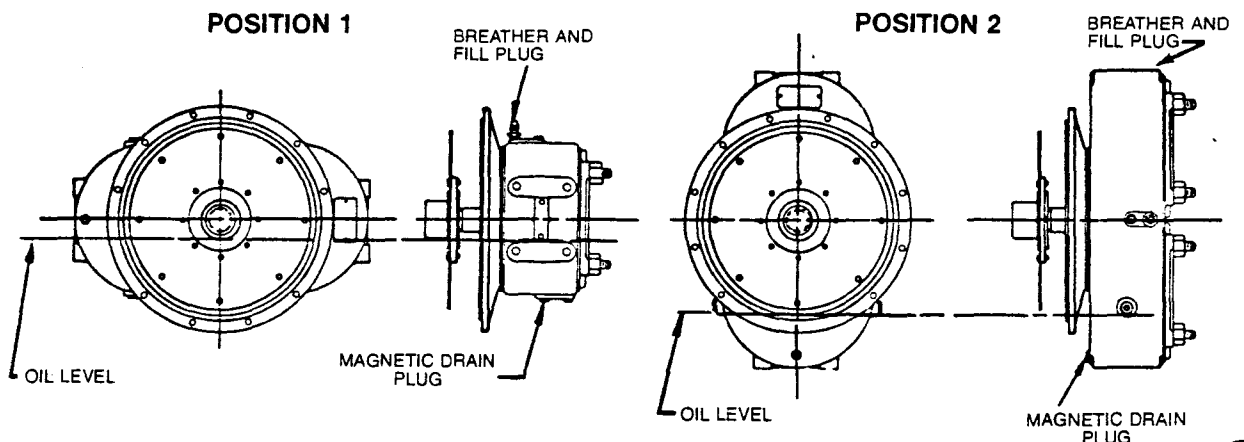
MODEL 28101



The oil capacity for positions 1 and 2 is 1½ quarts or 1.42 liters (approximate).

This unit can be installed in any one of four different positions. The oil capacity is approximately 2½ quarts or 2.37 liters for positions 3 and 4. The above drawings show the oil level for each installation and the position of the drain plug, fill plug, and breather.

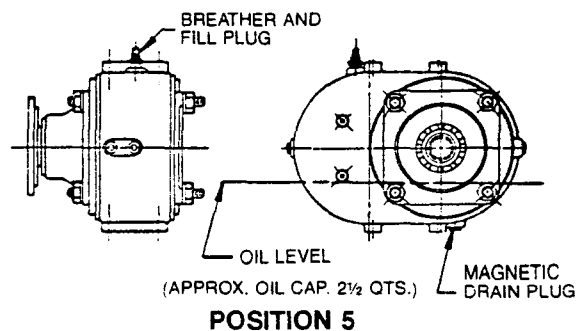
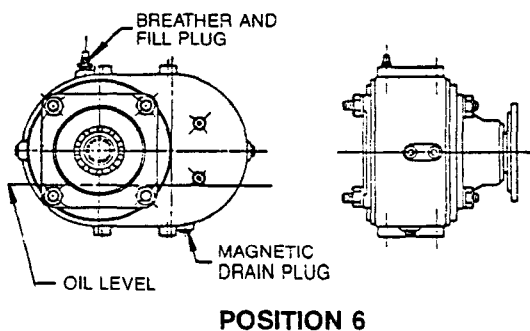
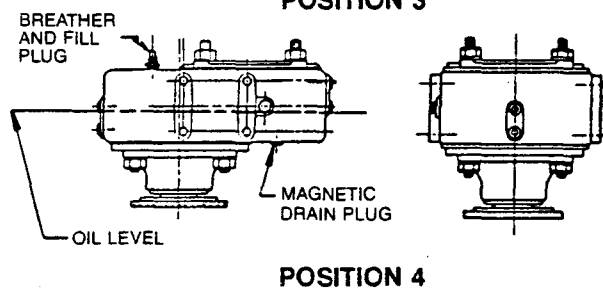
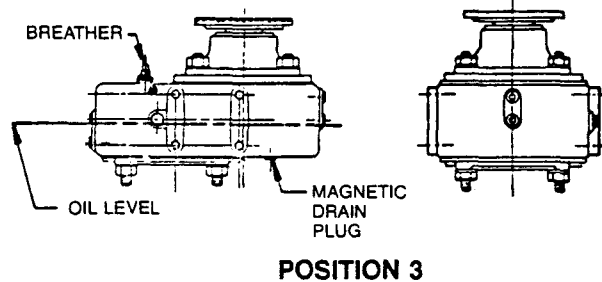
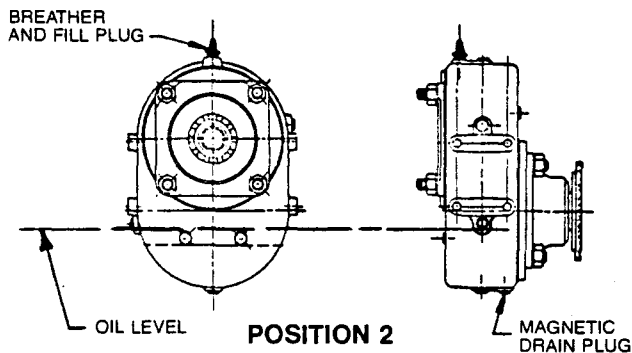
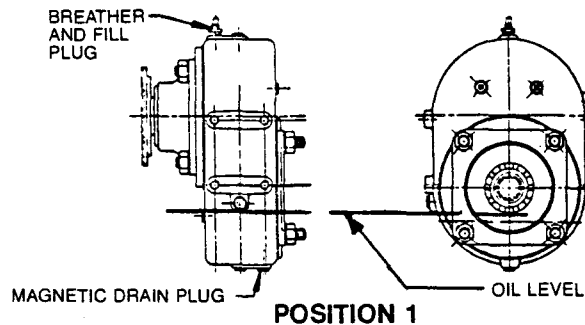
MODEL 28102



This model is a double pump drive and can be installed in either one of two different positions. The above drawings show the oil level and the location of the breather and magnetic plugs and filler plugs. The approximate oil capacity in position 1 is 4½ quarts or 4.23 liters and position 2 is 1½ quarts or 1.42 liters.

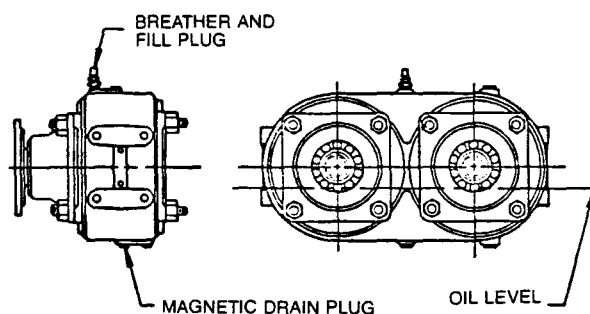
MODEL 28103

This unit, being an independent input can be mounted in any one of six different positions. The drawings below show the location of the oil level, breather and magnetic drain plugs, in the various positions. The approximate capacity in position 1 and 2 is 2½ quarts or 2.37 liters. In position 3 and 4 the oil capacity increases to approximately 4 quarts or 3.97 liters. In positions 5 and 6, approximate oil capacity is 2½ quarts or 2.37 liters.

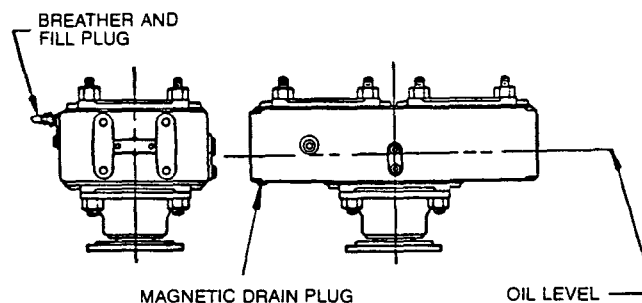


MODEL 28104

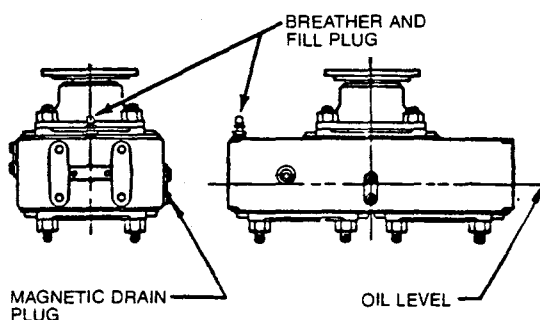
POSITION 1



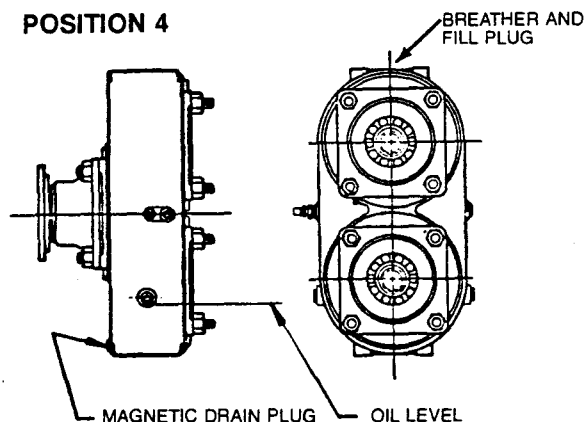
POSITION 2



POSITION 3



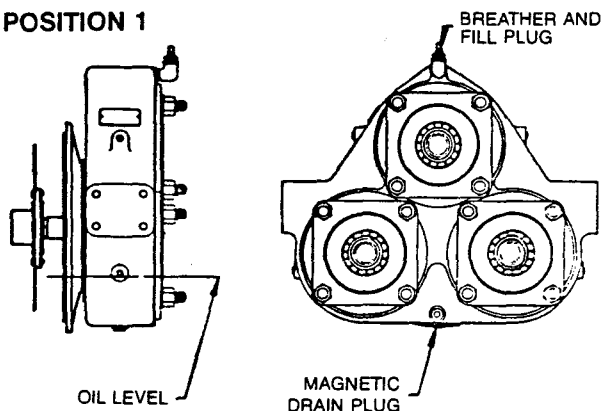
POSITION 4



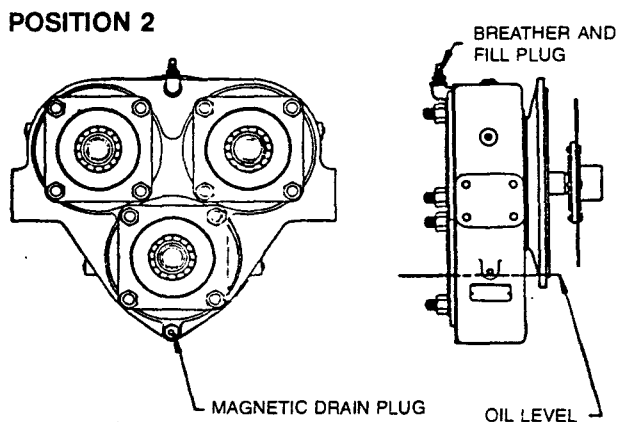
The above drawings describe the four different positions in which this unit can be mounted and the location of the oil level, breather, magnetic drain plugs, and fill plugs. The approximate oil capacity in position 1 is $4\frac{1}{2}$ quarts or 4.23 liters, in position 2 and 3, $5\frac{1}{2}$ quarts or 5.21 liters, and in position 4, $1\frac{1}{2}$ quarts or 1.42 liters.

MODEL 28211, 12, 13

POSITION 1



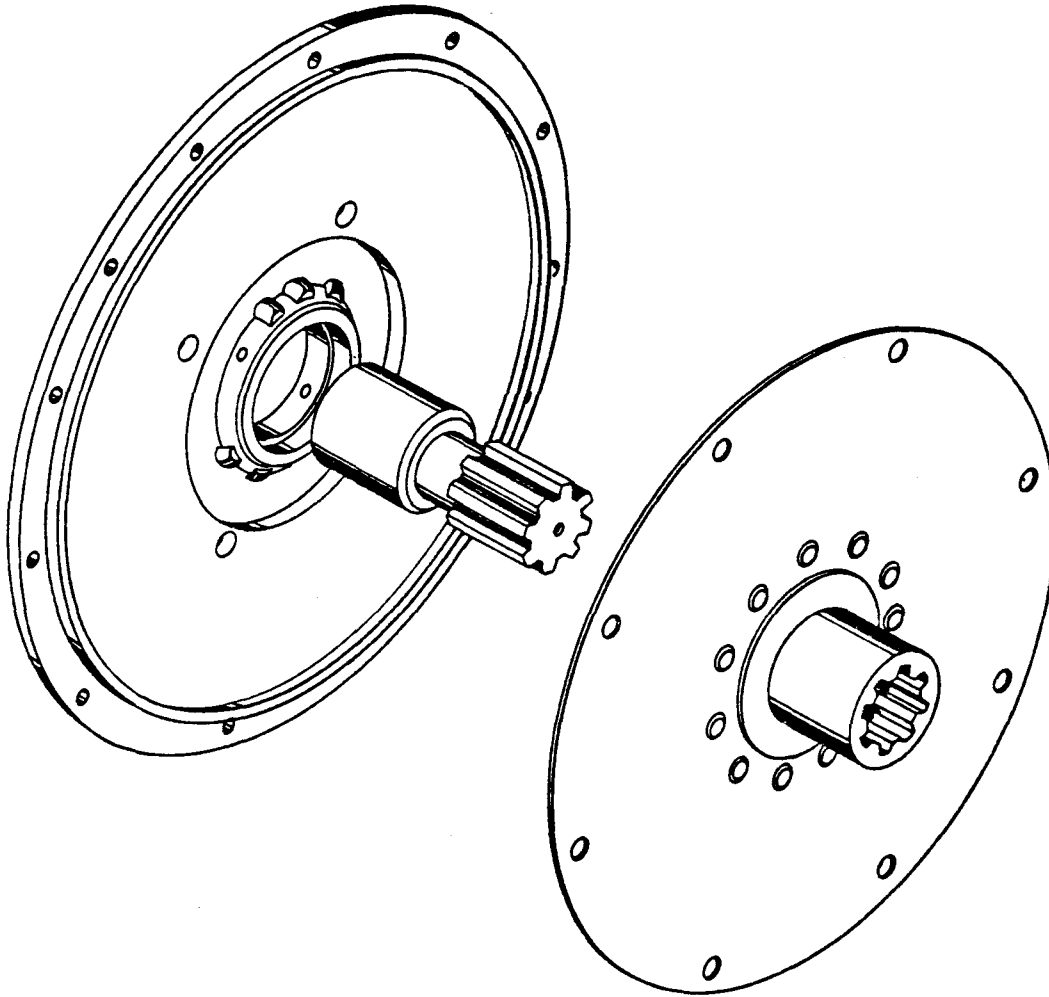
POSITION 2



The three models of the triple pump drive series consists of the engine-mounted independent input and clutch driven. The two mounting positions shown are applicable to all three models. The above drawings show the oil level, magnetic plugs, breather, tapped mounting holes, and oil level plug location.

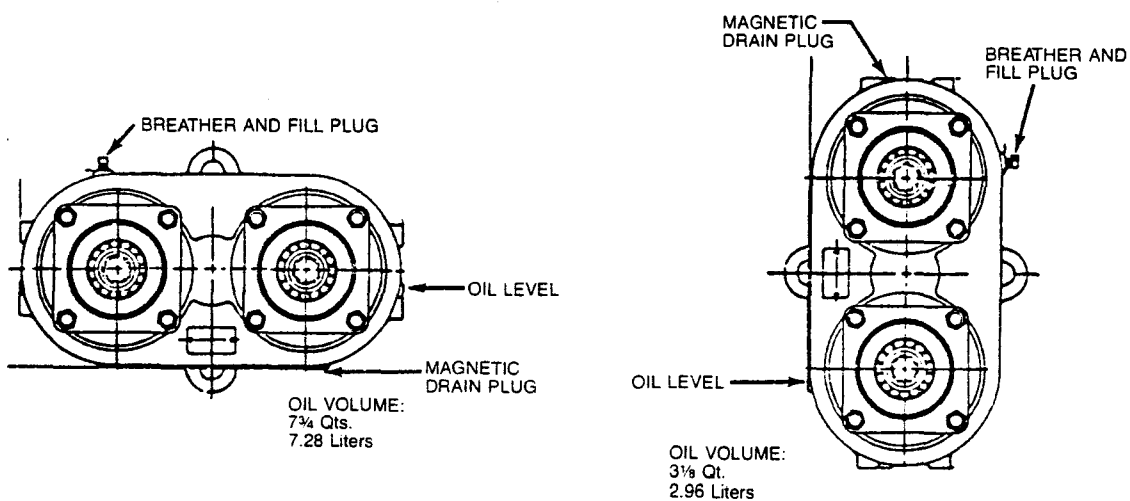
The oil capacity in position 1 is approximately $5\frac{1}{2}$ quarts or 5.21 liters and in position 2, approximately 3 quarts or 2.84 liters.

MODEL 28105

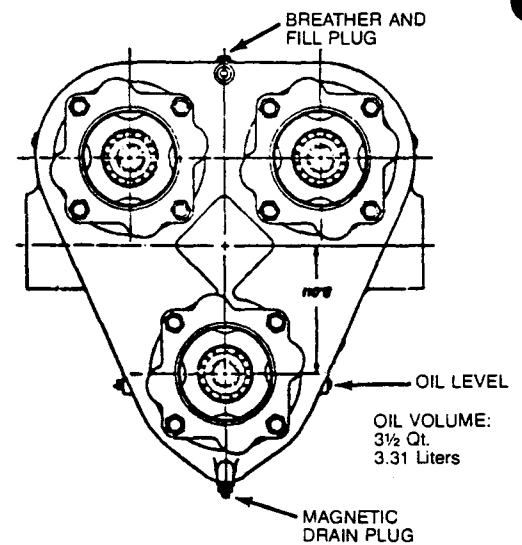
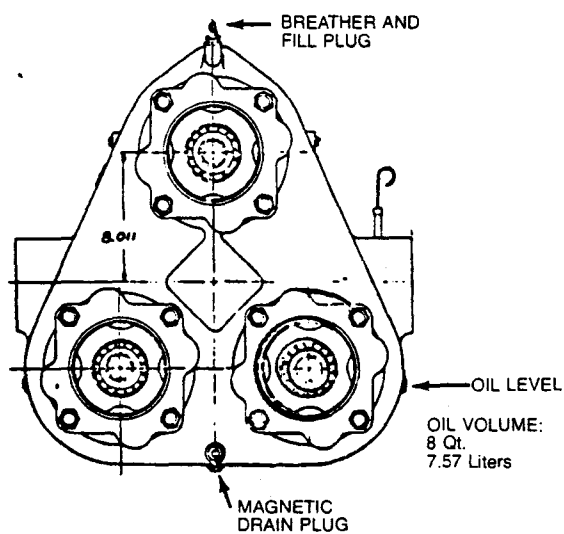


This model is an engine mounted single pump direct drive. The assembly consists of an engine adapter, pump adapter plate, and direct drive shaft. There is virtually no service on this model and no lubrication.

MODEL 592M

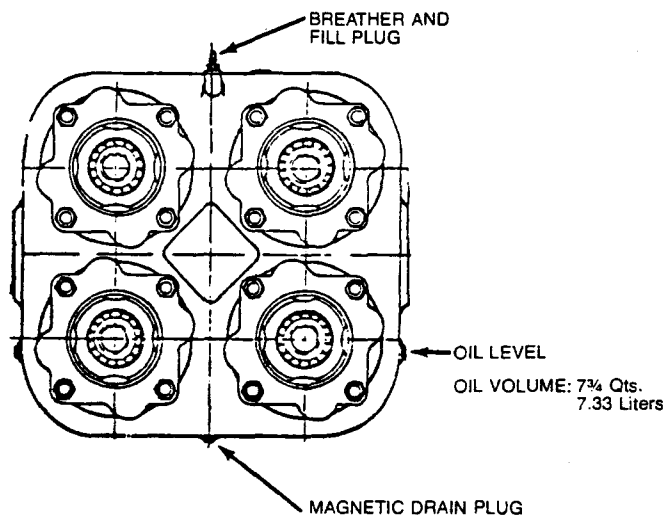


MODEL 593C



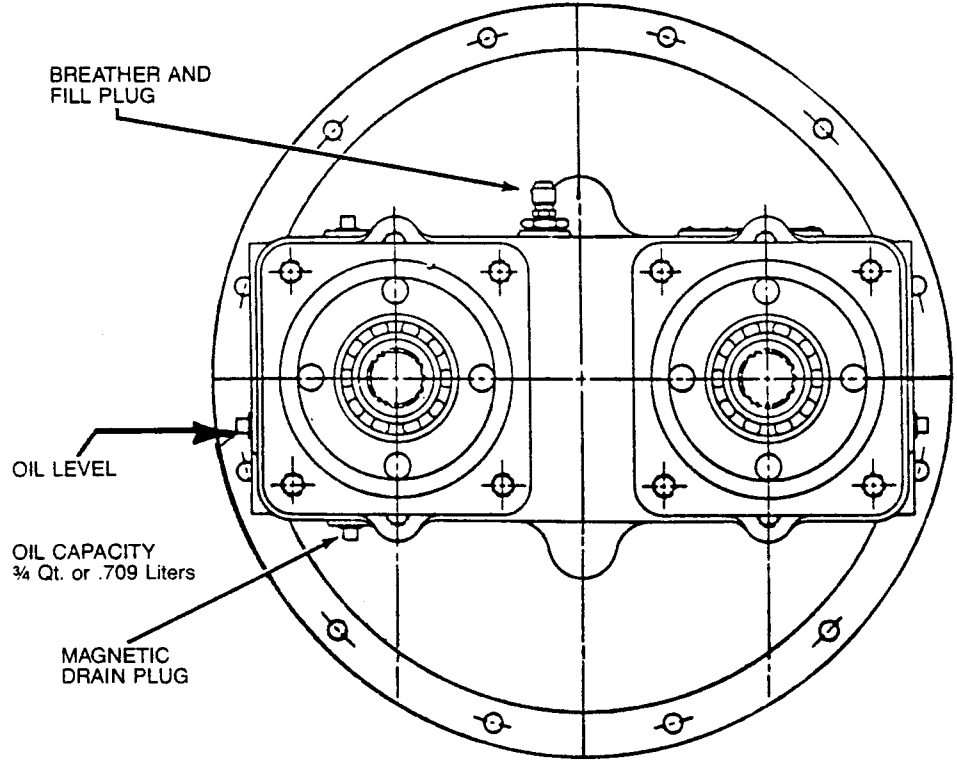
NOTE: UNITS THAT HAVE "DIPSTICK" LEVEL GAUGES CONTAIN THE SAME VOLUME AND LEVEL OF OIL AS THE EQUIVALENT UNIT WITH CHECK PLUG LEVELS.

FUNK PUMP DRIVE MODEL 594M



HORIZONTAL MOUNTING

FIGURE NO. 1

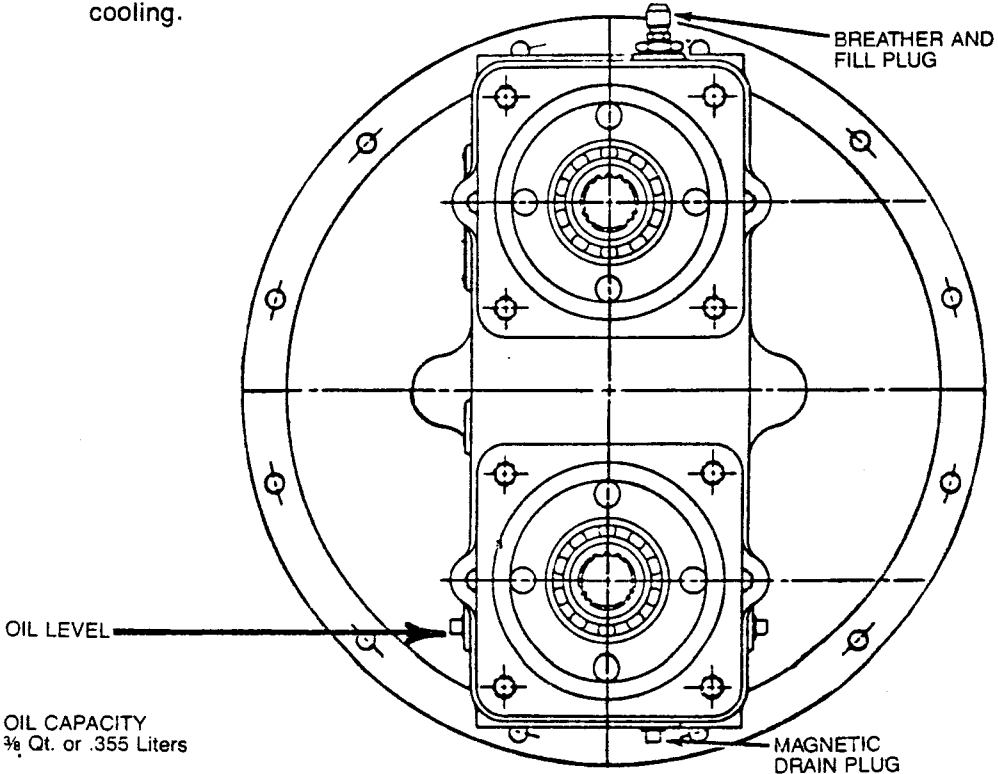


VERTICAL MOUNTING

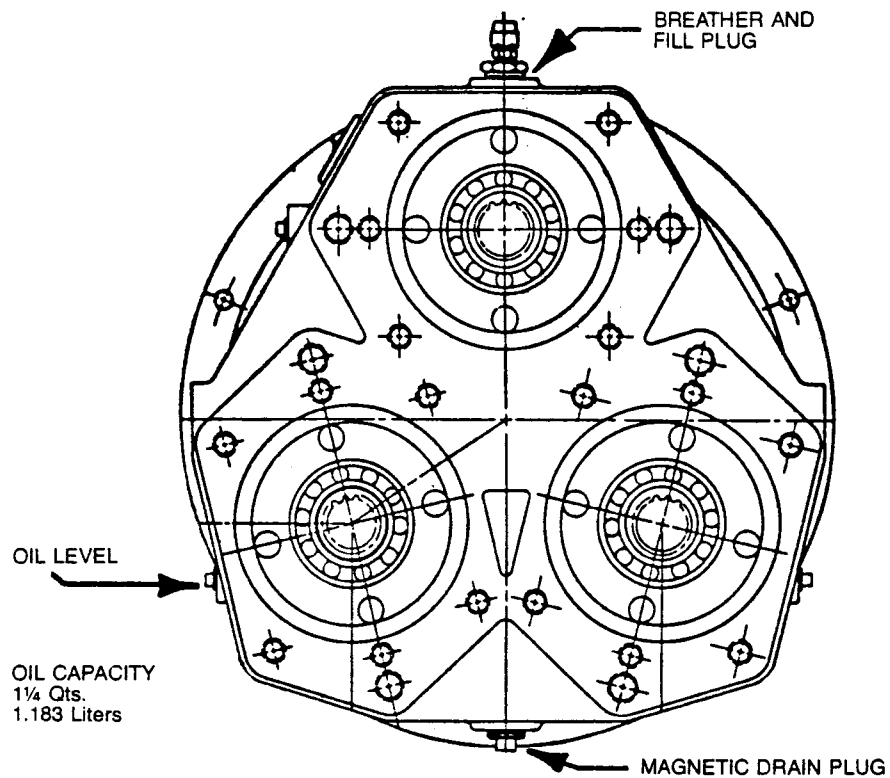
FIGURE NO. 2

NOTE: Continuous operation above 68 HP (50.73 kW) (horiz. pos.) or 20 HP (14.92 kW) (vert. pos.) should have provisions for auxilliary cooling.

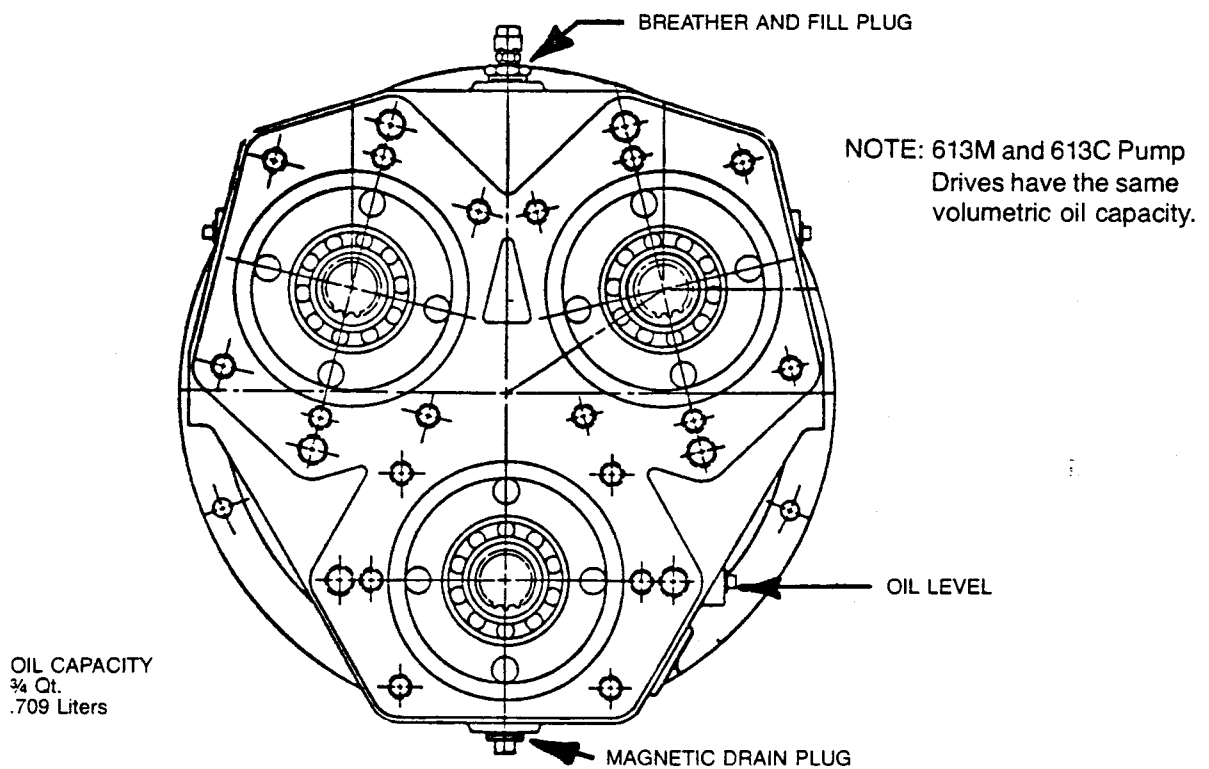
NOTE: 612M & 612C Pump Drives have the same volumetric oil capacity.



613P PUMP DRIVE



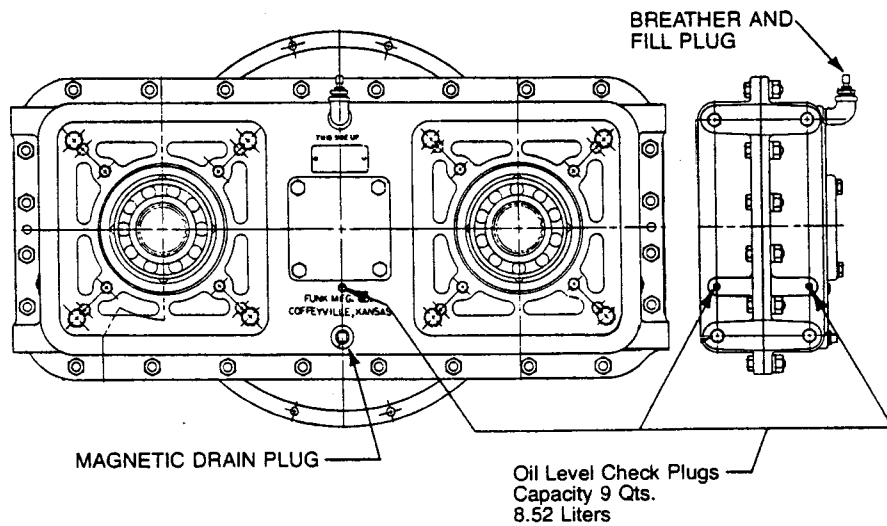
STANDARD MOUNTING FIGURE NO. 3



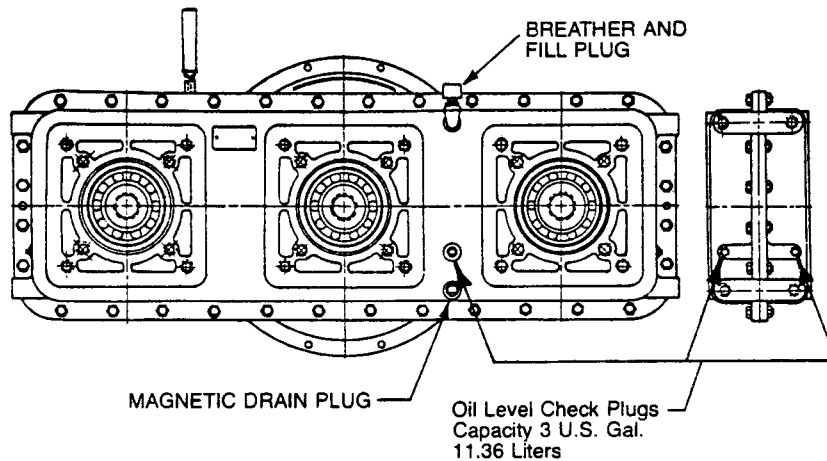
INVERTED MOUNTING FIGURE NO. 4

OIL LEVELS AND CAPACITIES

SERIES
56000




Capacity shown is typical for Models 56001 thru 56009.




Capacity shown is typical for Models 56010 thru 56015.

NOTE: DUE TO LUBRICATION SYSTEM DESIGN, MODELS 56000 SERIES, SHOULD ONLY BE MOUNTED AND OPERATED IN HORIZONTAL POSITION SHOWN ABOVE. OPERATION IN ANY OTHER POSITION MAY BE DETRIMENTAL TO GEARS AND BEARINGS.

CLUTCH ADJUSTMENT & LUBRICATION

MODEL NUMBER <input style="width: 100%;" type="text"/>		SPEC. NUMBER <input style="width: 100%;" type="text"/>
SERIAL NUMBER <input style="width: 100%;" type="text"/>	LUBRICATION	RATIO <input style="width: 100%;" type="text"/>
<p>CLUTCH - Apply small amount of lubricant to clutch throwout collar once a day. POWER TAKE-OFFS - Apply small amount of lubricant to shaft bearings every 50 hours. Gun fittings below.</p> <p><input type="radio"/> REDUCTIONS - See service manual for type, grade, and quantity of lubrication.</p> <p><input type="radio"/> CLUTCH ADJUSTMENT - SL type clutch. This clutch is a spring loaded type, and needs no adjustments.</p>		
<div style="display: flex; justify-content: space-between; align-items: center;">COFFEYVILLE,FUNK MFG. CO.KANSAS 67337</div>		

CLUTCH INSPECTION PLATE FOR "SL" TYPE CLUTCHES

MODEL NUMBER <input style="width: 100%;" type="text"/>		SPEC. NUMBER <input style="width: 100%;" type="text"/>
SERIAL NUMBER <input style="width: 100%;" type="text"/>	LUBRICATION	RATIO <input style="width: 100%;" type="text"/>
<p>CLUTCH - Apply small amount of lubricant to clutch throwout collar once a day. POWER TAKE-OFFS - Apply small amount of lubricant to shaft bearings every 50 hours. Gun fittings below.</p> <p><input type="radio"/> REDUCTIONS - See service manual for type, grade, and quantity of lubrication.</p> <p style="text-align: center;">CLUTCH ADJUSTMENT (OVERCENTER TYPE ONLY)</p> <p>IMPORTANT - If clutch does not pull, heats, or operating lever jumps out, adjustment is required. To adjust clutch, remove hand hole plate, turn clutch until adjusting lock pin can be reached. Pull adjusting pin out and turn adjusting yoke to right or clockwise until operating lever requires a distinct pressure to engage. A new clutch requires several adjustments until friction discs are worn in.</p>		
<div style="display: flex; justify-content: space-between; align-items: center;">COFFEYVILLE,FUNK MFG. CO.KANSAS 67337</div>		

CLUTCH INSPECTION PLATE FOR OVERCENTER TYPE CLUTCHES

CLUTCH DRIVEN MODELS. SAFE OPERATING SPEEDS.

SPECIFICATIONS

CLUTCH MODEL NUMBER	MAXIMUM SAFE OPERATING SPEEDS OVER CENTER CLUTCHES	Heavy Duty Working Torque	Newton Metre
C 108	3100	228	309
C 110	3100	328	445
C 111	2850	387	525
SP 211	2850	910	1234
SP 114	2400	810	1098
SP 214	2400	1620	2197

Heavy Duty

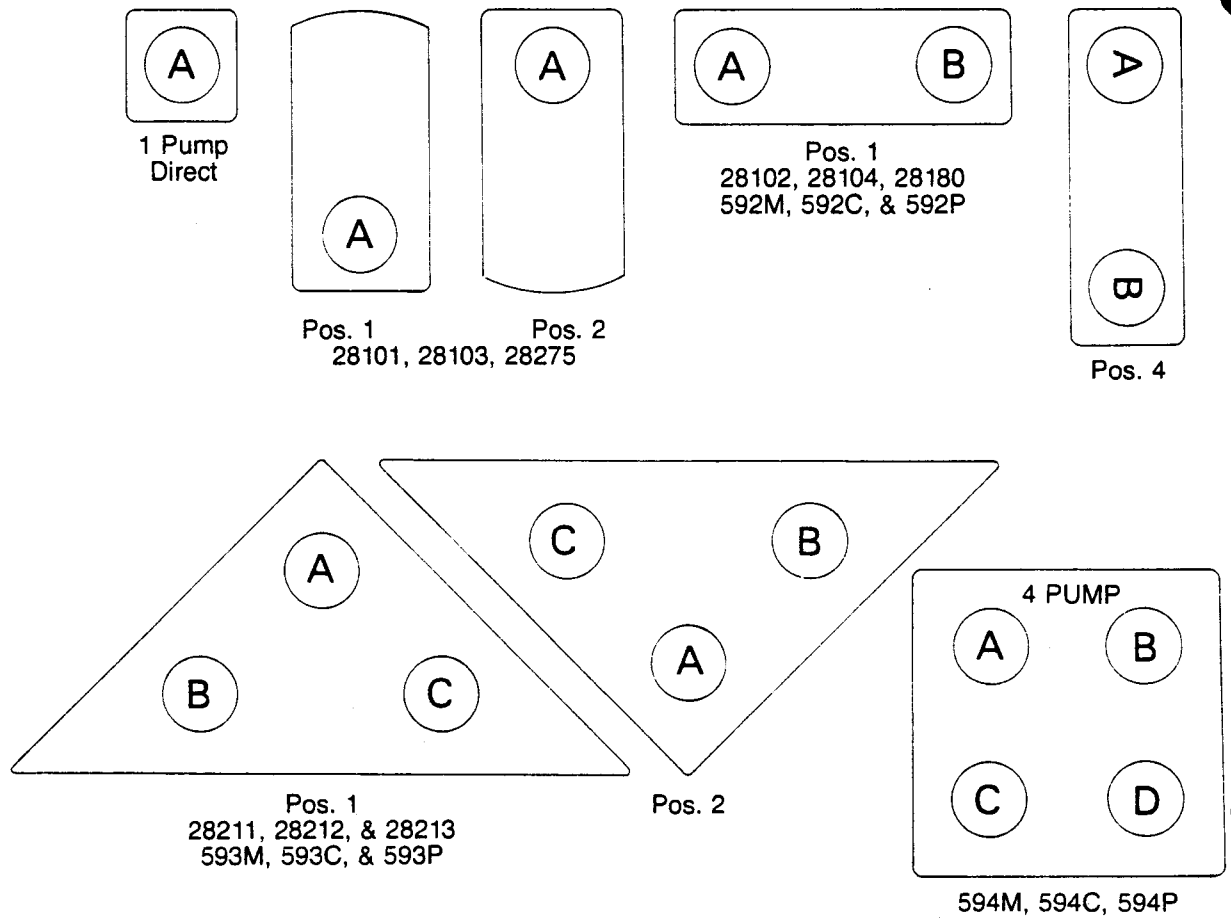
The clutch is used to start inertia loads with frequencies up to sixty (60) engagements per hour. Even more important is that the clutch can start the heaviest inertia load within four (4) seconds and that the product of seconds of clutch slip per engagement times the number of engagements per hour be under 180.

Heavy Duty applications may raise the clutch outer surface temperature to under 150°F (65.6°C) rise above the ambient air temperature.

The clutch must be selected according to its horsepower absorption capability.

Examples: PTO starting average inertia loads whose starting load is 180% of the running load. Also Rock Crusher applications where the clutch is not used to "break loose" jammed loads.

Pump Mounting Position Codes **28000, 59000, and 61000 Pump Positions**



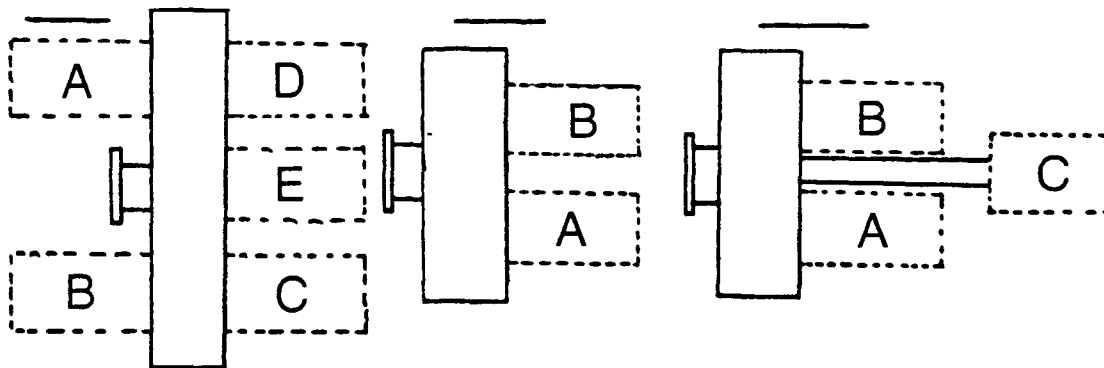
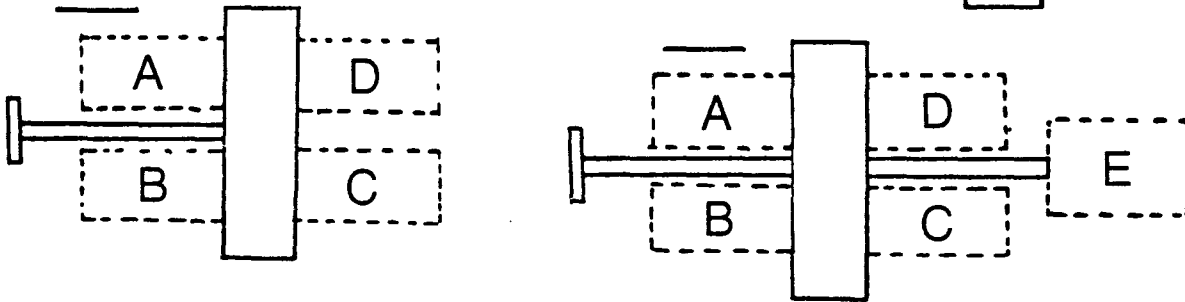
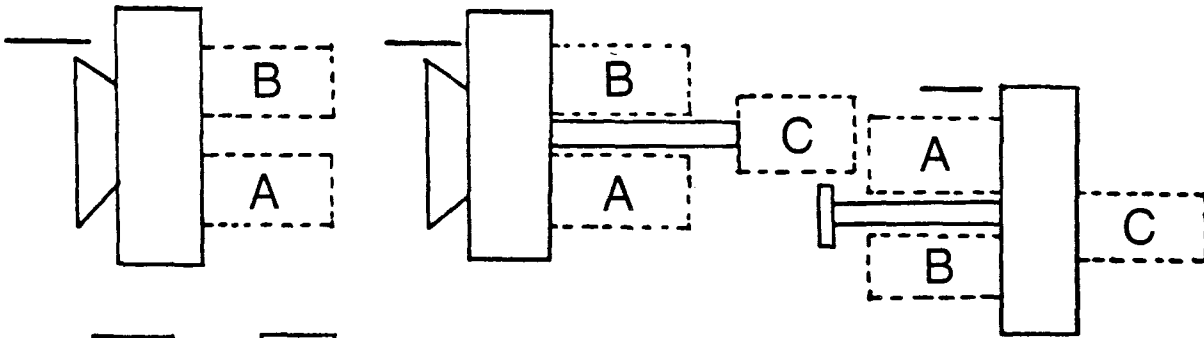
Gear box and pump mounting positions are shown to standardize communications between customer and factory (vendor) should questions concerning engineering or service arise.

Gear box mounting positions are shown as Pos. 1 or Pos. 2, etc. Pump location positions are shown by letters A, B, C, etc.

PUMP MOUNTING POSITIONS **All Views Are Top Views**

SERIES
56000

Unit arrangement (check the desired configuration)



5. Special Requirements:

B. Engine Mount (Plate Driven) Models - The model numbers for these units consist of six digits divided into three sections as follows:

$$\frac{28}{A} \quad \frac{XXX}{B} \quad \frac{X}{C}$$

1. Section A will be 28 which stands for the 28000 Series.
2. Section B is a three digit number that designates the number of driven pumps as follows:
101 = 1 pump 102 = 2 pumps
 211 = 3 pumps
3. Section C consists of 1 letter that designates the engine flywheel housing size as follows:
A = SAE No. 1 housing
B = SAE No. 2 housing
C = SAE No. 3 housing
D = SAE No. 4 housing
E = SAE No. 5 housing
F = SAE No. 5 housing with starter cut out
G = SAE No. 1 housing with through shaft
H = SAE No. 2 housing with through shaft
J = SAE No. 3 housing with through shaft
K = SAE No. 4 housing with through shaft
L = SAE No. 5 housing with through shaft

C. Clutch Driven Models - The model numbers for these units consists of 6 digits divided into three parts as follows:

$$\begin{array}{r} 28 \\ \hline A \end{array} \quad \begin{array}{r} XXX \\ \hline B \end{array} \quad \begin{array}{r} X \\ \hline C \end{array}$$

1. Section A will be 28 which stands for the 28000 series.
2. Section B is a three digit number that designates the number of driven pumps as follows:
275 = 1 pump 180 = 2 pumps
 213 = 3 pumps
3. Section C consists of 1 digit letter that designates the engine flywheel housing size and special clutch features as required:
A = SAE No. 1 housing
B = SAE No. 2 housing
C = SAE No. 3 housing
D = SAE No. 4 housing
E = SAE No. 1 housing with T.D. SP-211 clutch
F = SAE No. 1 housing with T.D. SP-114 clutch
G = SAE No. 2 housing with T.D. SP-211 clutch
H = SAE No. 3 housing with T.D. SP-211 clutch
J = SAE No. 1 housing with through shaft
K = SAE No. 2 housing with through shaft
L = SAE No. 3 housing with through shaft
M = SAE No. 4 housing with through shaft
N = SAE No. 1 housing with through shaft and SP-114 clutch
P = SAE No. 1 housing with through shaft and SP-211 clutch
R = SAE No. 2 housing with through shaft and SP-211 clutch
S = SL-111 clutch with 1 ⁹/₁₆ inch offset
T = SL-111 clutch with 2 ¹/₈ inch offset
U = SAE No. 1 housing with T.D. SP-214 clutch
V = SPECIAL bearing release collar

EXAMPLE:

28 275 C (28275C)
 | | | SAE No. 3 housing
 | | | 1 pump drive
 | | 28000 series

28 213 M (28213M)
 └ SAE No. 4 housing with
 through shaft
 └ 3 pump drive
 └ 28000 series

MODEL NUMBER CODE PUMP DRIVE

CLUTCH DRIVEN AND PLATE DRIVE MODELS

59 XP XX X X X X (59XPXXXXX)
A B C D E F G

1. Section A - 59 = 59000 Series
2. Section B - 2P = 2 Pump Drive
3P = 3 Pump Drive
4P = 4 Pump Drive
3. Section C - Flywheel Size or Clutch Size
08 = 8" 10 = 10" Single Plate
10 = 10" 11 = 11½" Single Plate
11 = 10½" 14 = 14" Single Plate
14 = 14" 21 = 11½" 2 Plate
24 = 14" 2 Plate
4. Section D - C = Clutch Driven P = Plate Driven
5. Section E - Clutch or Flywheel Housing Size
1 = SAE No. 1
2 = SAE No. 2
3 = SAE No. 3
6. Section F - Ratio Code = *
7. Section G - (Optional) E = Thru shaft Extension,
F = Thru Pinion Shaft on Clutch

EXAMPLES: Driven Models: F = SAE "A" Center
Pad on Plate Driven Models

59 2P 10 C 2 A (592P10C2A)
└─ 1.00:1 Ratio
└─ SAE No. 2 Housing
└─ Clutch Driven
└─ 10" Flywheel
└─ 2 Pump Model
└─ 59000 Series

59 3P NS P 1 H (593PNSP1H)
└─ 1.383:1 Ratio
└─ SAE No. 1 Housing
└─ Plate Driven
└─ Non Standard Flywheel
└─ 3 Pump Model
└─ 59000 Series

INDEPENDENT INPUT MODELS

59 XP F X X (59XPFX)
A B C D E

1. Section A - 59 = 59000 Series
2. Section B - 2P = 2 Pump Drive; 3P = 3 Pump Drive; 4P = 4 Pump Drive
3. Section C - F = Flange Drive
4. Section D - Ratio Code = *
5. Section E - (Optional) E = Thru shaft extension

EXAMPLES:

59 2P F A (592PFA)
└─ 1.00:1 Ratio
└─ Flange Drive
└─ 2 Pump Model
└─ 59000 Series

59 4P F B (594PFB)
└─ .836:1 Ratio
└─ Flange Drive
└─ 4 Pump Model
└─ 59000 Series

*See next page for ratios

**MODEL NUMBER CODE
PUMP DRIVE**

SERIES
59000

* 4 Pump Ratio Code

A = .778:1 Speed Up (1.286)
B = .836:1 Speed Up (1.196)
E = 1.1960:1 Reduction
F = 1.286:1 Reduction
G = 1.00:1
H = 1.383:1 Reduction
J = .723:1 Speed Up (1.383:1)
K = 1.113:1 Reduction
L = .898:1 Speed Up (1.113)

* 2 Pump Ratio Code

A = 1.00:1
B = 1.10:1 Reduction
C = .909:1 Speed Up (1.10)
D = 1.40:1 Reduction
E = .714:1 Speed Up (1.40)
F = 1.545:1 Reduction
G = .647:1 Speed Up (1.545)
H = .585:1 Speed Up (1.709)

* 3 Pump Ratio Code

A = .778:1 Speed Up (1.286)
B = .836:1 Speed Up (1.196)
C = .846:1 Speed Up (1.182)
D = 1.182:1 Reduction
E = 1.196:1 Reduction
F = 1.286:1 Reduction
G = 1.00:1
H = 1.283:1 Reduction
J = .723:1 Speed Up (1.383)
K = .898:1 Speed Up (1.113)
L = 1.113:1 Reduction

FUNK MANUFACTURING COMPANY **MODEL CODE**

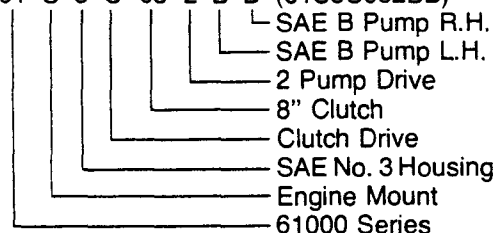
PLATE DRIVEN AND CLUTCH DRIVEN MODELS

61 S X X XX X X X X (61SXXXXXXX)
A B C D E F G H J

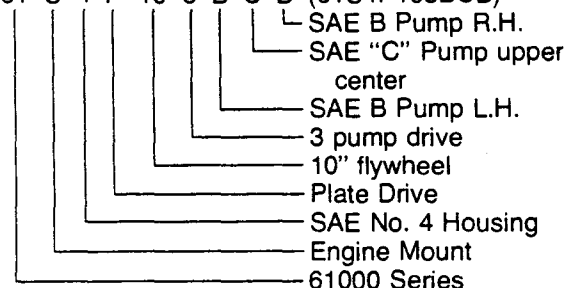
1. Section A - 61 = 61000 Series
2. Section B - S = Engine mounted (adapter to SAE flywheel housing)
3. Section C - S.A.E. Flywheel housing size
3 = SAE No. 3
4 = SAE No. 4
5 = SAE No. 5
4. Section D - P = Plate Drive; C = Clutch Drive
5. Section E - Flywheel size (nominal clutch size)
7½ = 7½"
08 = 8"
10 = 10"
NS = Non Standard
6. Section F - 2 = 2 Pump Drive;
3 = 3 Pump Drive
7. Section G - L.H. Pump Size
A = SAE "A"; B = SAE "B";
C = SAE "C"
8. Section H - R.H. Pump Size on two Pump Models
Upper center pump Size on three pump models
A = SAE "A"; B = SAE "B";
C = SAE "C"
9. Section J - R.H. Pump Size on three pump models only
A = SAE "A"; B = SAE "B";
C = SAE "C"

EXAMPLES:

61 S 3 C 08 2 B B (61S3C082BB)



61 S 4 P 10 3 B C B (61S4P103BCB)



INDEPENDENT INPUT MODELS

61 M X X X X X (61MXXXXX)
A B C D E F G

1. Section A - 61 = 61000 Series
2. Section B - M = Independent Input
3. Section C - K = Keyed input shaft;
N = Splined Input Shaft;
NS = Non Standard;
D = Input Disconnect Assembly
4. Section D - 2 = 2 Pump Drive;
3 = 3 Pump Drive
5. Section E - Left Hand Pump Size
A = SAE "A";
B = SAE "B";
C = SAE "C"
6. Section F - Right Hand Pump Size on 2 pump Models
Upper Center Pump Size on 3 pump Models
A = SAE "A";
B = SAE "B";
C = SAE "C"
7. Section G - Right Hand Pump Size on 3 pump Models
A = SAE "A";
B = SAE "B";
C = SAE "C"

EXAMPLES:

61 M N 2 A B (61MN2AB)

- SAE "B" Pump Right Side
- SAE "A" Pump Left Side
- 2 Pump Drive
- Spline Input Shaft
- Independent Input
- 61000 Series

61 M K 3 C B C (61MK3CBC)

- SAE "C" Pump Lower Right
- SAE "B" Pump Upper Center
- SAE "C" Pump Lower Left
- 3 Pump Drive
- Keyed Input Shaft
- Independent Input
- 61000 Series

DIRECT ENGINE MOUNT MODELS

61 XX X X X X (61XXXXXX)
A B C D E F

1. Section A - 61 = 61000 Series
2. Section B - WA = Adapter to Wisconsin Engine Series VG4D with CA-69-C-2 Crankshaft; 194B Bearing Retainer and PH-278 Rear Crankshaft Seal
WB = Adapts to Wisconsin Engine Series V461D and V465D with CA-75-C-1 Crankshaft and PL-150-1 Key
WC = Adapts to Wisconsin Engine VH4D with CA-71-A-14 Crankshaft; BG-210-C-13 Rear Bearing Retainer and PH-200-B Rear Crankshaft Seal.
ON = Adapts to Onan Engine Series NH and MS with crankshafts equivalent to Onan Drawing Number 110C960
VW = Adapts to Volkswagon Engine
3. Section C - Indicates length input shaft and flange type as follow:
A = 27" Shaft, 7C, 8C, and 1800 Flange
B = 4.94" Shaft, 7C, 8C, and 1800 Flange
C = 4.31" Shaft, 6C, 7C, and 1600 Flange
D = 2½" Diameter with ½ keyway
4. Section D - Indicates how many pump drive pads
5. Section E - Indicates left hand pump pad size on 2 pump model and lower left hand pump pad size on 3 pump model
6. Section F - Indicates right hand pump pad size on 2 pump model and upper center pump pad size on 3 pump model
7. Section G - Indicates lower right hand side pump pad size on 3 pump model

MODEL NUMBER CODE PUMP DRIVE

1. CLUTCH DRIVEN MODELS

A. The Model Number is divided into three sections

560	XX	X
A	B	C

1. Section "A" is always 560 and designated the 56000 Series

2. Section "B" indicates clutch driven models as follows:

"01" = 2 Pump Clutch Driven

"04" = 3 Pump Clutch Driven

"11" = 5 Pump Clutch Driven

3. Section "C" indicates clutch size and clutch housing size, as follows:

"A" = SP-114 or SP-214 Clutch and SAE No. 0 Clutch Housing.

"C" = SP-211 Clutch and SAE No. 1 Clutch Housing

"D" = SP-114 or SP-214 Clutch and SAE No. 1 Clutch Housing

"F" = SP-211 Clutch and SAE No. 2 Clutch Housing

"G" = SL-214 Clutch and SAE No. 1 Clutch Housing

2. PLATE DRIVE MODELS

A. Three Section Model No. as Above:

560	XX	X
A	B	C

1. Section "A" (560) Indicates basic 56000 Model

2. Section "B" Indicates Plate Driven Models as follows:

"02" = 2 Pump Plate Driven

"05" = 3 Pump Plate Driven

"12" = 5 Pump Plate Driven

3. Section "C" Indicates Engine Bell Housing and Engine Adapter Size

A = SAE No. 0

B = SAE No. 1

C = SAE No. 2

3. INDEPENDENT INPUT MODELS

A. Three Section Model Number

560	XX	X
A	B	C

1. Section "A" Indicates Basic 56000 Model

2. Section "B" Indicates Independent Input Models as follows:

"03" = 2 Pump Models (10" Gear Centers)

"06" = 3 Pump Models (10" Gear Centers)

"13" = 5 Pump Models (16" Gear Centers)

"15" = 5 Pump Models with Drive Flange Offset to Side

3. Section "C" Indicates type input flange as follows:

A = Flange to fit spicer 1700 and 1800 or mechanics 7C and 8C.

B = 3 Inch Diameter shaft with 3/4" Keyway

4. LINE SHAFT INPUT MODELS

A. Three Section Model Number

560	XX	X
A	B	C

1. Section "A" Indicates Basic Model 56000.

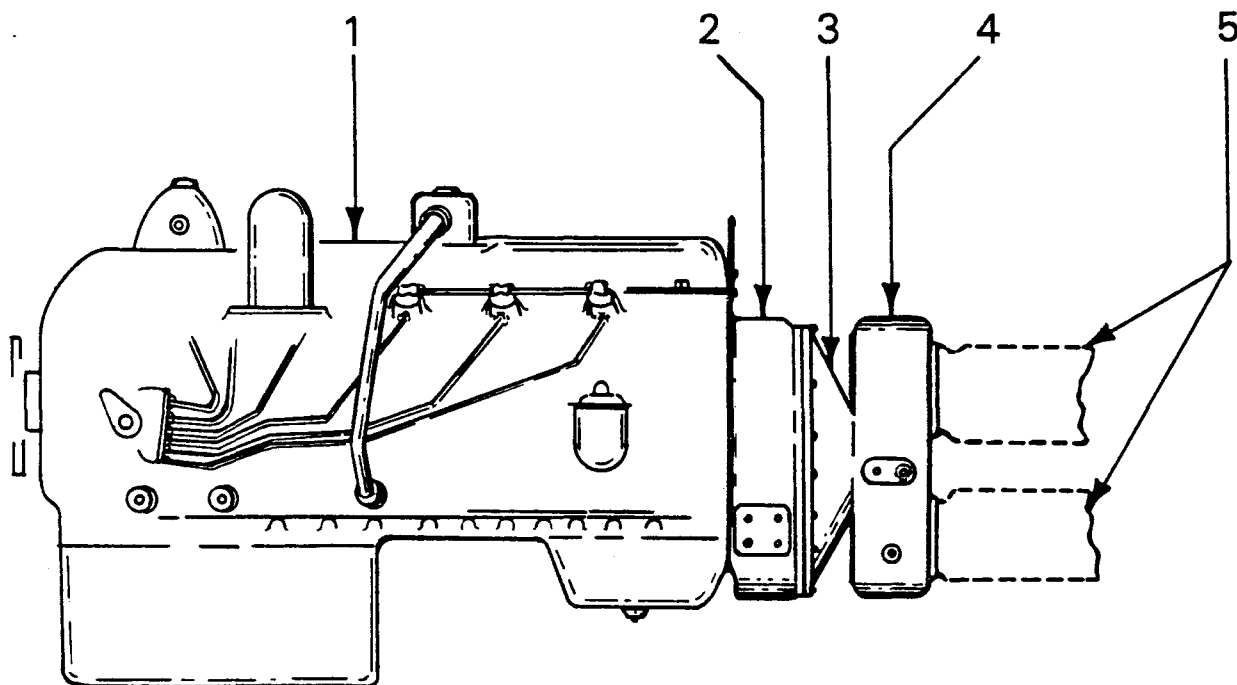
2. Section "B" Indicates Line Shaft Input Models as follows:

"07" = 3 Pump Models

"08" = 4 Pump Models

"09" = 5 Pump Models

TYPICAL DISASSEMBLY AND ASSEMBLY PROCEDURES FOR MODELS 28000, 59000, & 61000 PUMP DRIVES



Power Train with engine mounted Pump Drive

1. Engine 2. Flywheel Cover 3. Engine Adapter 4. Pump Drive 5. Hydraulic Pumps

DISASSEMBLY

1. Drain oil from pump drive gear box by removing allen head pipe plug from bottom of main case.
2. Remove hydraulic pumps by removing capscrews, or nuts from studs. Remove pumps straight away from pump drive.
3. Remove pump drive from engine by removing capscrews, holding engine adapter housing to flywheel cover of engine. Remove pump drive straight away from engine.
 - a. Clutch driven models:
Remove nut and starwasher holding clutch bearing lubrication line to engine adapter. The clutch and drive shaft assembly may tend to remain with engine. Should this occur, move clutch throwout handle in a manner which will allow clutch sliding sleeve trunions to disengage from throwout fork.
 - b. Flex plate driven models:
The drive shaft will remain with either the drive plate or the pump drive box. Be prepared to retrieve drive shaft from either.

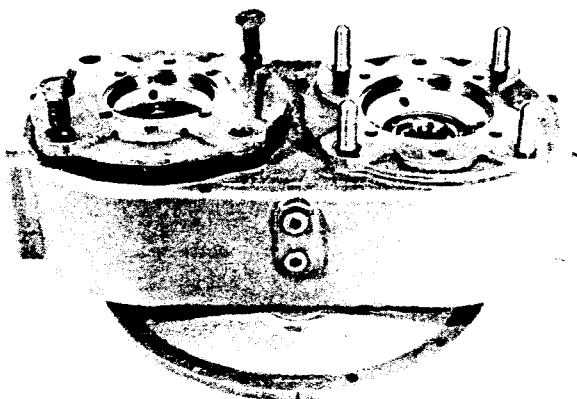


Fig. 4

Pump drive gear box should be positioned so that the hydraulic pump adapter pads are facing up.

Remove place bolts or nuts from studs and lift adapter pads up from gear box.

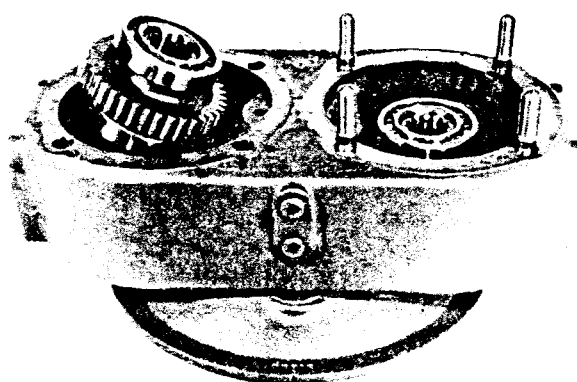


Fig. 5

Lift driven gears and their bearings from pump drive box. This can be done by hand since the bearings are slip fitted to the housing and pump adapter bores. Bearings are press fitted to gear hubs. It may be necessary to tip gear slightly to clear pinion gear bearing pocket.

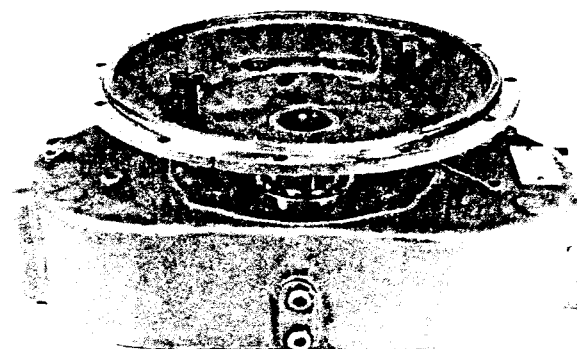


Fig. 6

After all driven gears and their bearings have been removed, position gear box so that the engine adapter (clutch housing or independent input flange) is facing up. Remove place bolts and lift engine adapter up from gear box. Lift pinion gear and bearings from pump drive box.

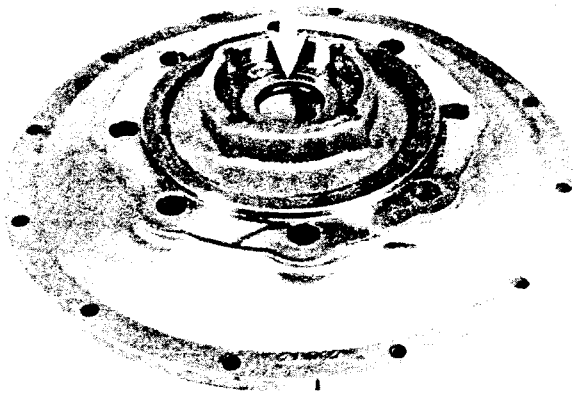


Fig. 7

Should replacement of oil seal be required, drive oil seal toward engine side of engine adapter.
Note: Drive in direction of arrow.

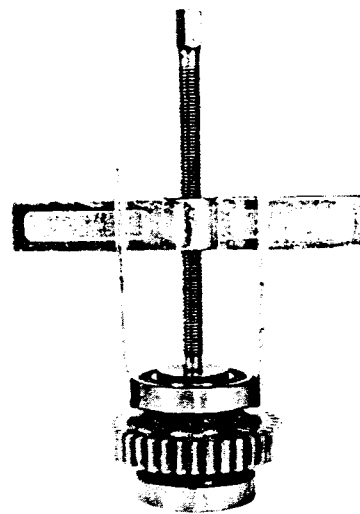


Fig. 8

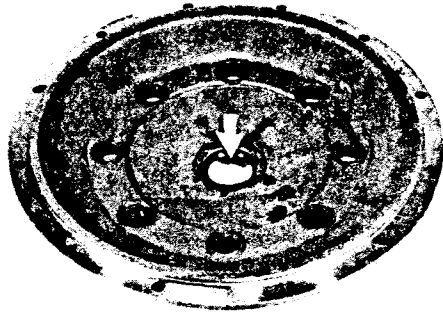
To remove bearings from gear hubs, use gear puller or Arbor Press.

REASSEMBLY

For assembly of models 28000, 59000, and 61000 pump drives, use reverse procedure of figures 1 through 8.

NOTE: Plastic cord used for gasket material under pump adapter plates and input housing is not reusable. Replace with new material when reassembling. See drawing number 4028802 for installation of cord gasket. Place bolts should not be re-used. Clean the old loctite out of the bolt hole threads. Install new place bolts with loctite 262 on models 28000 and 59000, the engine adapter, clutch housing and pump pad. Place bolts are torqued to 200 ft. lbs. (271 nm). If studs are used in pump drive pad, torque studs to 150 ft. lbs. (203 nm). The 61000 pump drive engine adapter, clutch housing and pump drive pads are torqued to 150 ft. lbs. (203 nm).

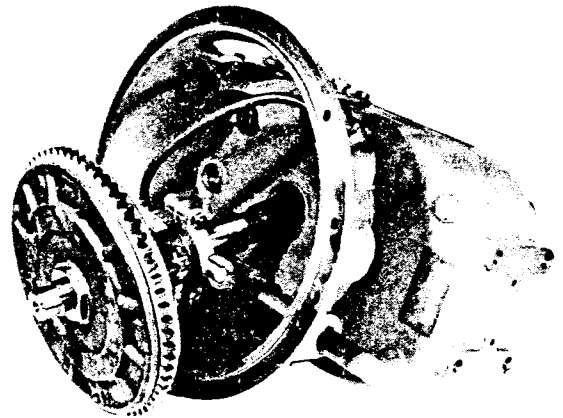
REASSEMBLY



Replacement of oil seal

Install oil seal from engine side of engine adapter. The rubber lip of the oil seal must point toward the inside of pump drive gear box.

Note: Drive in direction of arrow.



Clutch driven models

Install clutch and shaft assembly into pinion gear of pump drive before mounting to engine.

SERVICE PARTS

WHEN ORDERING SERVICE PARTS THE FOLLOWING INFORMATION LOCATED ON THE IDENTIFICATION TAG, MUST BE GIVEN TO PARTS DEPARTMENT PERSONNEL.

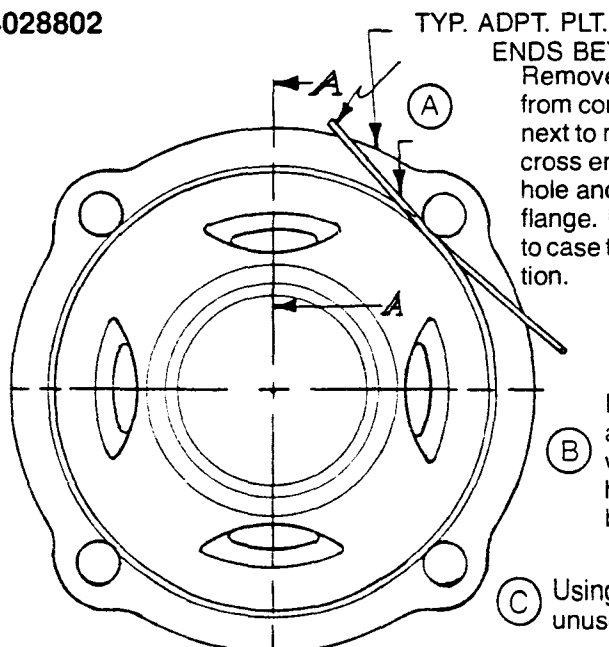
MODEL NUMBER
SPEC NUMBER
SERIAL NUMBER
RATIO

Drive plate models

When installing drive plate on flywheel, be sure the long end of the drive plate hub is toward the engine. The hub should slide into the pilot bearing bore of the flywheel to insure proper alignment of the drive hub and drive shaft.

Note: Arrow indicates engine side

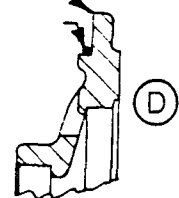
4028802



TYP. ADPT. PLT.

ENDS BEYOND FLANGE

Remove protective paper strip from cord and with adhesive side next to metal, install around pilot, cross ends as shown behind bolt hole and let ends extend beyond flange. Use caution in assembly to case to prevent gasket dislocation.



Do not attempt to re-use this gasket. For re-assembly use new gasket material. On fly-wheel housings involving more than 4 bolt holes - be sure string gasket lap joint falls behind one hole location.

Using bolt or stud fastener, not behind an unused hole.

Typical Disassembly And Assembly Procedures For

MODEL
56000

NOTE: The 56000 Model pump drive gear box uses a split case with the two halves dowelled and bolted together, do not disconnect these two halves until the entire pump drive assembly has been removed from the machine.

1. Drain oil from pump drive gear box
2. Remove hydraulic pumps from pump drive by removing the capscrews and pulling the pumps straight away from the gear box.
3. Remove the pump drive from the engine, if engine adapter is mounted. If not mounted to engine, disconnect and remove the pump drive from the input source.

Remove dowell pins by driving them toward the engine (or input) side of pump drive.

(Arrow indicates dowell pin and direction of removal.)

If air breather (A) is damaged, replacement is necessary. Do not plug the elbow. (B) indicates engine adapter.

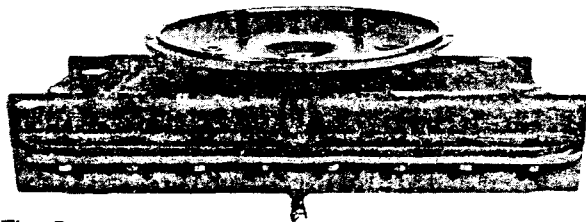
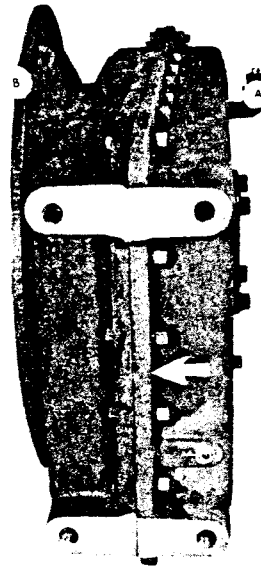


Fig. 5

Place pump drive on work bench with engine (or input) side up. Remove engine adapter or independent input drive flange from gear box.

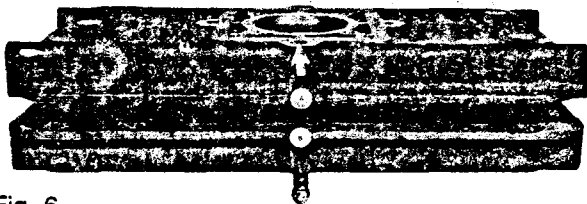


Fig. 6

Remove the 24 capscrews, lockwashers and nuts which couple together the two halves (input and output housing) of pump drive. Lift the upper (input) half straight up and remove gasket. (A) Input housing (B) Output housing. Arrow indicates direction of removal.

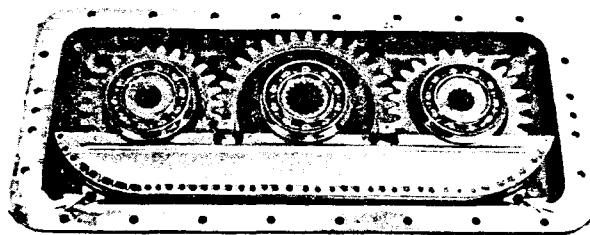


Fig. 7

Remove the two capscrews which hold the oil trough to lower (output housing) and remove trough.

If trough cannot be tipped and pulled out from under the gears, it will be necessary to lift each gear and bearing assembly from the output housing until trough can be removed.

Arrows indicate oil trough capscrews.

8. With oil trough removed, lift gears and their bearings from output housing. This can be done by hand since bearings are slip fitted to the housing bores and press fitted to gear hubs.
9. To remove bearings from gear hubs use a gear puller or arbor press.

ASSEMBLY

For assembly of the Model 56000 Pump Drive, use reverse procedure of Figures 1 through 9. The 4 place bolts for the engine adapter or clutch housing should not be re-used. Clean the place bolt hole threads to remove the old loctite. Install the new place bolts with loctite 262 and torque to 200 ft. lbs. (271 nm). Torque the 24 capscrews and nuts to 75 ft. lbs.

SERVICE PARTS

When ordering service parts, the following information located on the identification tag must be given to parts department personnel.

Model Number
Spec Number
Serial Number