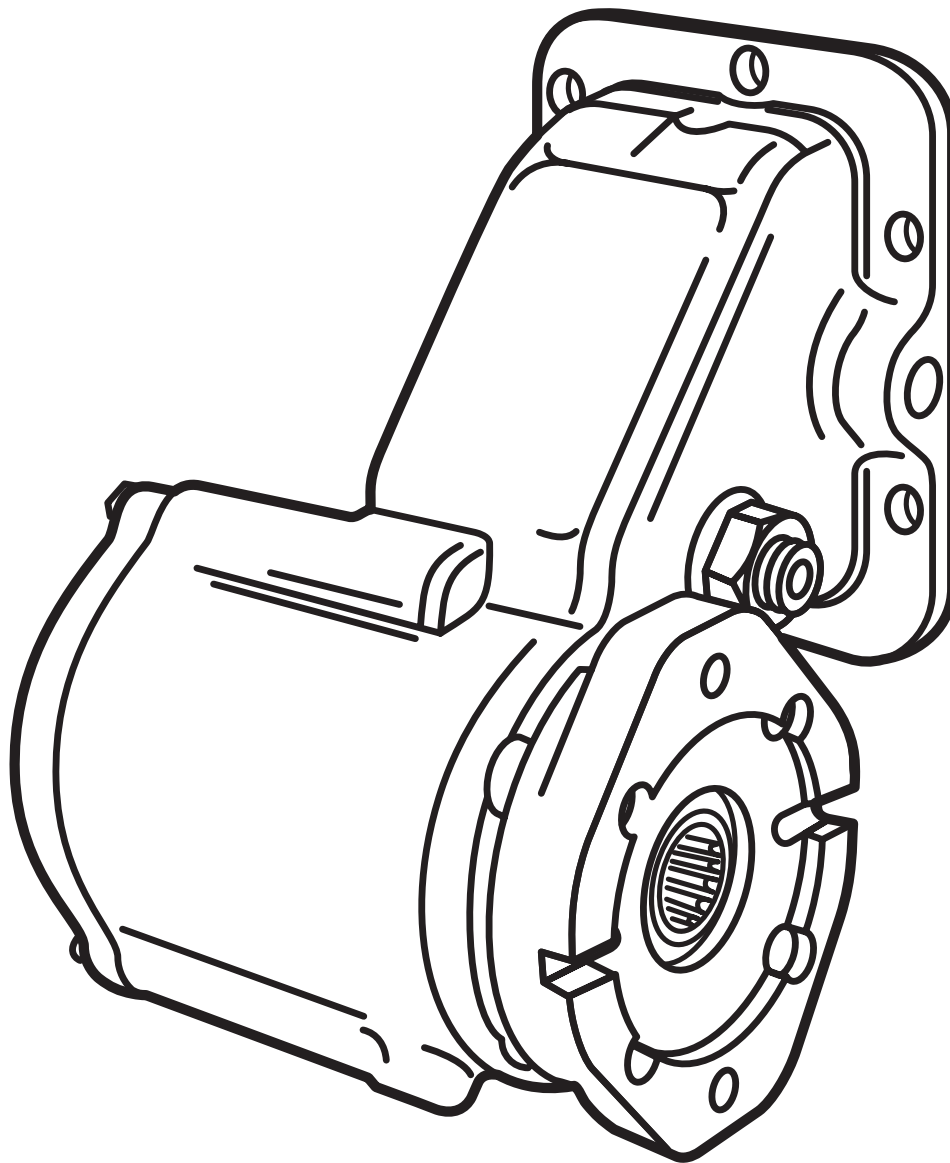




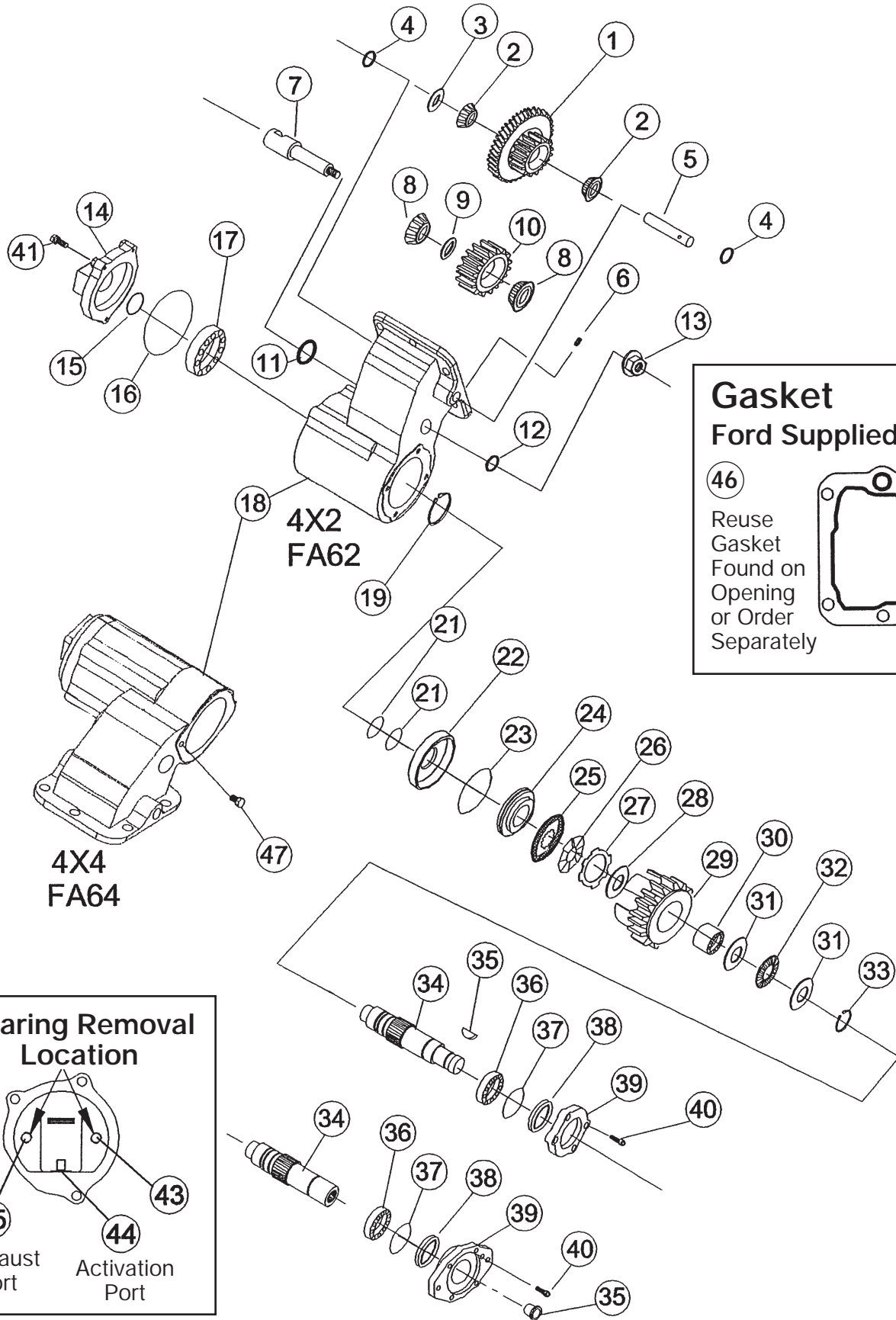
# FA SERIES FORD AUTOMATIC PTO

## PARTS LIST AND SERVICE MANUAL

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# FA SERIES PTO EXPLODED VIEW



**Gasket**  
Ford Supplied

46  
Reuse  
Gasket  
Found on  
Opening  
or Order  
Separately

**Bearing Removal  
Location**

45 Exhaust Port

44 Activation Port

43

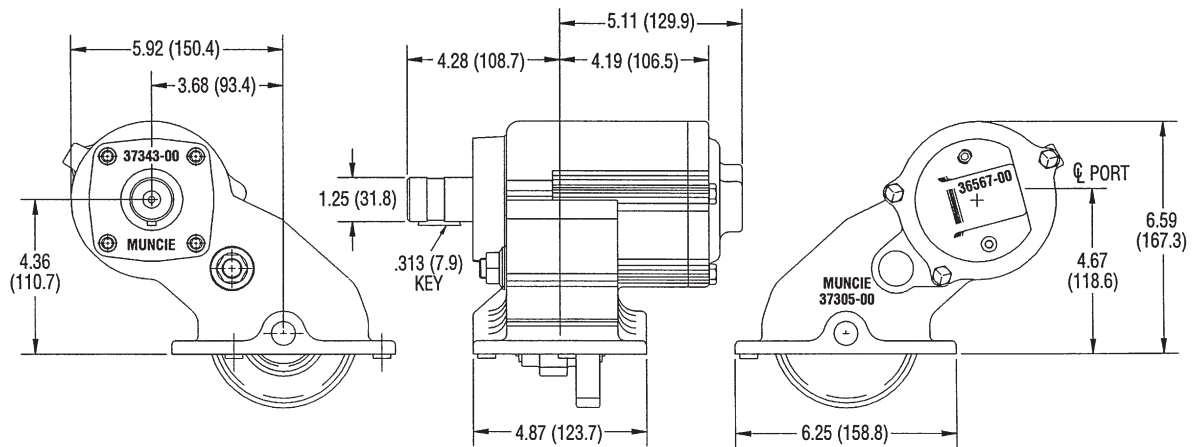
# PARTS LIST AND DESCRIPTION

| ITEM | QTY | PART NO. | DESCRIPTION                                    |
|------|-----|----------|--|
| 1    | 1   | 03T36247 | Input Gear                                     |
| 2    | 2   | 10T36244 | Input Bearing                                  |
| 3*   | 1   | 18T36282 | Input Bearing Spacer<br>(.110/.106")(Blue)     |
|      | 1   | 18T36281 | Input Bearing Spacer<br>(.116/.112")(Beige)    |
|      | 1   | 18T36257 | Input Bearing Spacer<br>(.122/.118")(Red)      |
|      | 1   | 18T36256 | Input Bearing Spacer<br>(.128/.124")(Alum.)    |
|      | 1   | 18T36255 | Input Bearing Spacer<br>(.134/.130")(White)    |
| 4    | 2   | 12T37037 | O-ring   |
| 5    | 1   | 07T36243 | Input Idler Shaft                              |
| 6    | 1   | 19T36249 | Set Screw                                      |
| 7    | 1   | 08T37194 | Idler Shaft                                    |
| 8*   | 2   | 10T37191 | Idler Bearing                                  |
| 9*   | 1   | 18T37245 | Idler Bearing Spacer<br>(.2526/.2496")(White)  |
|      | 1   | 18T37246 | Idler Bearing Spacer<br>(.2476/.2446")(Yellow) |
|      | 1   | 18T37247 | Idler Bearing Spacer<br>(.2426/.2396")(Pink)   |
|      | 1   | 18T37248 | Idler Bearing Spacer<br>(.2376/.2346")(Orange) |
|      | 1   | 18T37249 | Idler Bearing Spacer<br>(.2326/.2296")(Green)  |
|      | 1   | 18T37250 | Idler Bearing Spacer<br>(.2276/.2246")(Brown)  |
|      | 1   | 18T37251 | Idler Bearing Spacer<br>(.2226/.2196")(Red)    |
|      | 1   | 18T37252 | Idler Bearing Spacer<br>(.2176/.2146")(Blue)   |
|      | 1   | 18T37253 | Idler Bearing Spacer<br>(.2126/.2096")(Black)  |
| 10*  | 1   | 04T37190 | Reverse Idler Gear                             |
| 11   | 1   | 12T37701 | O-ring   |
| 12   | 1   | 12T37203 | O-ring   |
| 13   | 1   | 22T37322 | Flange Nut                                     |
| 14   | 1   | 15T36568 | Cover (FA62 Only)                              |
|      | 1   | 15T37289 | Cover (FA64 Only)                              |
| 15   | 1   | 12T36280 | O-ring   |
| 16   | 1   | 12T36279 | Cover O-ring (FA62 Only)                       |
|      | 1   | 12T37278 | Cover O-ring (FA64 Only)                       |
| 17   | 1   | 10T21017 | Bearing (FA62 Only)                            |
|      | 1   | 10T37320 | Bearing (FA64 Only)                            |
| 18   | 1   | 01T37306 | Housing (FA62 Only)                            |
|      | 1   | 01T37238 | Housing (FA64 Only)                            |
| 19   | 1   | 24T23937 | Snap Ring                                      |

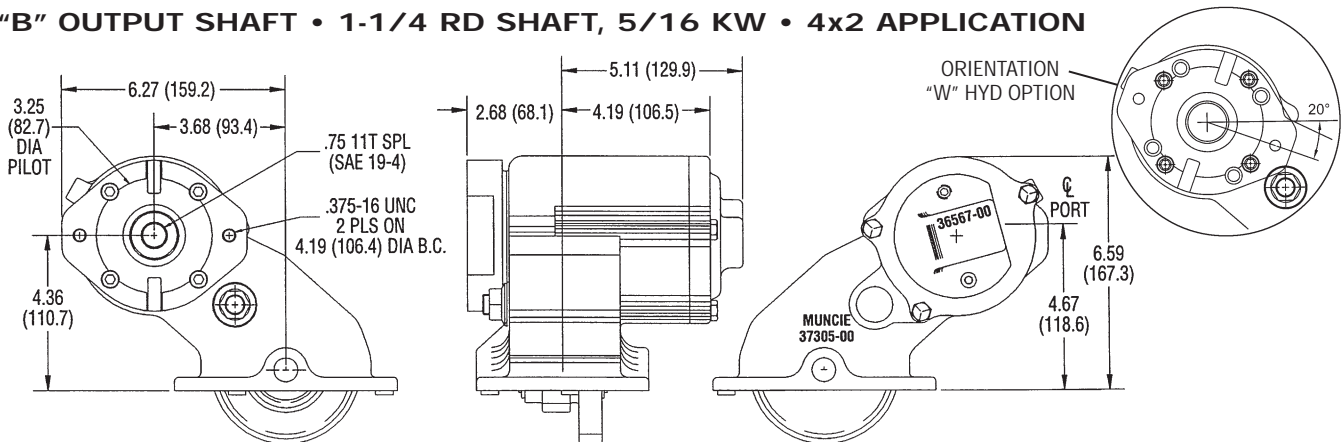
| ITEM | QTY | PART NO. | DESCRIPTION                                      |
|------|-----|----------|--|
| 21   | 2   | 12T36877 | O-ring (FA62 Only)                               |
|      | 2   | 12T37321 | O-ring (FA64 Only)                               |
| 22   | 1   | 49T36288 | Piston Cup (FA62 Only)                           |
|      | 1   | 49T37342 | Piston Cup (FA64 Only)                           |
| 23   | 1   | 12T36863 | Piston O-ring (FA62 Only)                        |
|      | 1   | 12T36540 | Piston O-ring (FA64 Only)                        |
| 24   | 1   | 49T36287 | Piston (FA62 Only)                               |
|      | 1   | 49T37341 | Piston (FA64 Only)                               |
| 25   | 7   | 49T36259 | Friction Disc                                    |
| 26   | 8   | 27T36286 | Wave Spring                                      |
| 27   | 6   | 49T36258 | Spacer Disc                                      |
| 28   | 1   | 21T37085 | Thrust Washer                                    |
| 29   | 1   | 02T36254 | Output Bell Gear                                 |
| 30   | 1   | 10T37008 | Bearing  |
| 31   | 2   | 21T29017 | Thrust Washer                                    |
| 32   | 1   | 10T37009 | Thrust Bearing                                   |
| 33   | 1   | 24T35480 | Snap Ring  |
| 34   | 1   | 06T36295 | Output Shaft "B" (FA62 Only)                     |
|      | 1   | 06T36253 | Output Shaft "T" (FA62 Only)                     |
|      | 1   | 06T37325 | Output Shaft "T" (FA64 Only)                     |
| 35   | 1   | 26T01627 | Woodruff Key "B" (FA62 Only)                     |
|      | 1   | 25T37387 | Cap Plug "T" (Both)                              |
| 36   | 1   | 10T21017 | Bearing (FA62 Only)                              |
|      | 1   | 10T37229 | Sealed Bearing (FA64 Only)                       |
| 37   | 1   | 12T36277 | Cover O-ring (FA62 Only)                         |
| 38   | 1   | 11T37790 | Shaft Seal (FA62 Only)                           |
| 39   | 1   | 14T37344 | "B" Brg. Cover (FA62 Only)                       |
|      | 1   | 14T39141 | "T" Hyd. Flange (FA62 Only)                      |
|      | 1   | 14T37781 | "W" Hyd. Flange (FA62 Only)                      |
| 40   | 4   | 19T39257 | Capscrew   |
| 41   | 3   | 19T32740 | Capscrew   |
| 43   | 1   | 25T21684 | Pipe Plug  |
| 44   | 1   | 25T37702 | Cap Plug   |
| 45   | 2   | 25T34029 | Cap Plug   |
| 46   | 1   | 13T37386 | Ford Transmission Gasket                         |
| 47   | 1   | 19T37726 | Storage Capscrew (FA64 Only)                     |
| N.S. | 1   | 43TK3890 | Lube Kit   |
| N.S. | 1   | 20TK4070 | Stud Kit (FA62 Only)                             |
|      | 1   | 20TK4071 | Stud Kit (FA64 Only)                             |
| N.S. | 1   | 52TK3963 | Instruction Packet                               |
| N.S. | 1   | 13T37626 | H.E.G.O. Sensor Gasket<br>(FA64 Gas Engine Only) |

\* Reverse Idler Gear, Idler Bearing, and Shim are sold as an assembly only. The Shim color code listed is a paint mark which is found on the edge of the Spacer.

# FA62 SERIES DIMENSIONS IN INCHES (MM)

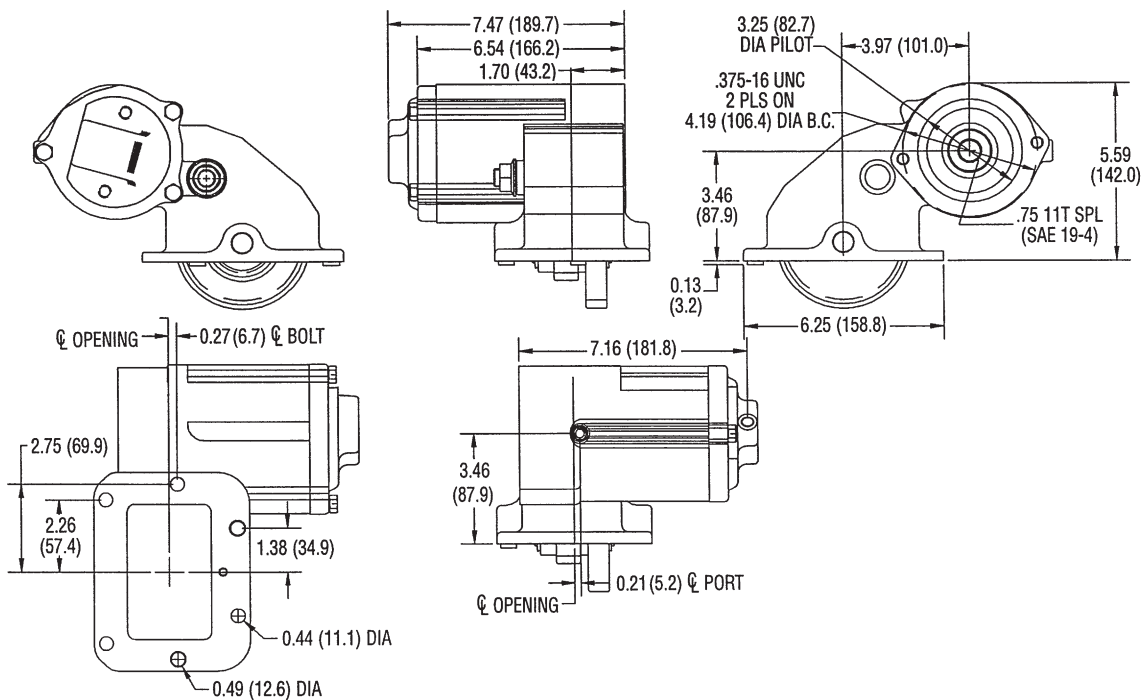


**"B" OUTPUT SHAFT • 1-1/4 RD SHAFT, 5/16 KW • 4x2 APPLICATION**



**"T" or "W" HYDRAULIC MOUNT • SAE "A" PILOT, 3/4" 11T SPLINE SHAFT • 4x2 APPLICATION**

# FA64 SERIES DIMENSIONS IN INCHES (MM)



**"T" HYDRAULIC MOUNT • SAE "A" PILOT, 3/4" 11T SPLINE SHAFT • 4x4 APPLICATION**

# MODEL NUMBER CONSTRUCTION

FA 62 — F14 06 — H 3 T X

### PTO Type

Ford Automatic — FA

### Mounting

SAE 6 Bolt Mount 4x2 Chassis — 62  
SAE 6 Bolt Mount 4x4 Chassis — 64

### Trans. FA Gear Data

Ford 14.2P 15.9°PA 18° LH — F14

### Speed Ratio

06 — .62:1

### Special Feature

X — None

### Output Type

B — 1-1/4 Round 5/16 KW (FA62 Only)  
T — 3/4 - 11 Spline - 2 Bolt "A"  
W — 3/4 - 11 Spline - (Tandem Pump)

### Assembly Arrangement

2 (FA64)  
3 (FA62)

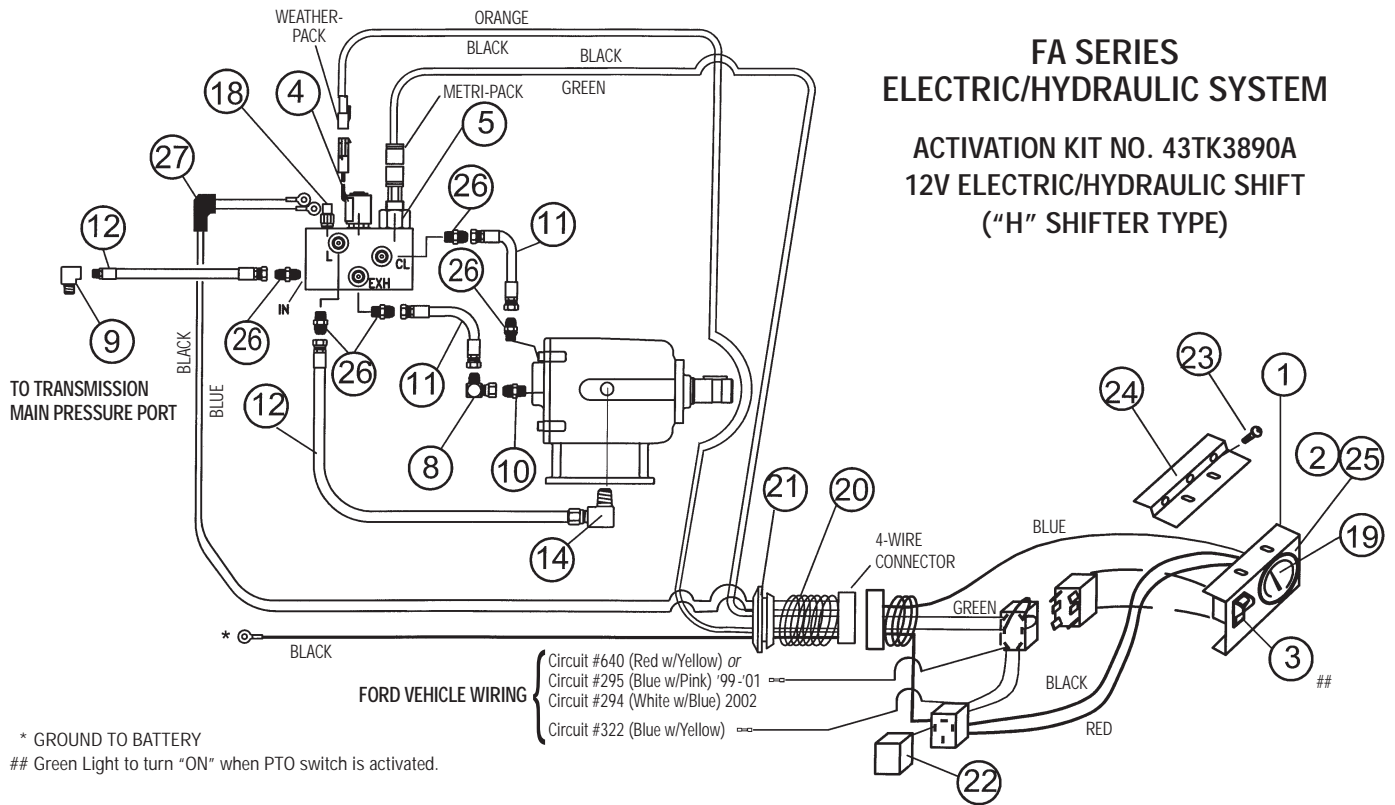
### Shifter Type

H — Electric/Hydraulic (12 Volt)  
Z — Special 2 Pos Switch

# FA SERIES INSTALLATION KIT

## FA SERIES ELECTRIC/HYDRAULIC SYSTEM

ACTIVATION KIT NO. 43TK3890A  
12V ELECTRIC/HYDRAULIC SHIFT  
("H" SHIFTER TYPE)



| ITEM | QTY | PART NO. | DESCRIPTION                |
|------|-----|----------|----------------------------|
| 1    | 1   | 36T37600 | Switch Bracket             |
| 2    | 1   | 36T37393 | Face Plate                 |
| 3    | 1   | 30T37620 | Rocker Switch 12v          |
| 4    | 1   | 35T38279 | 12v Solenoid Valve w/Block |
| 5    | 1   | 30T37954 | Pressure Switch            |
| 8    | 2   | 43T36445 | Elbow, 1/8 JIC To JIC      |
| 9    | 1   | 44MB0222 | Male Elbow 1/8 NPT         |
| 10   | 1   | 43T37503 | 1/8 JIC Adapter            |
| 11   | 2   | 45T36274 | Hose Assembly 28"          |
| 12   | 2   | 45M4R528 | Pressure Hose Assembly     |
| 14   | 1   | 43T37385 | Orifice Elbow              |
| 18   | 1   | 31T37602 | Temperature Sensor         |
| 19   | 1   | 32T37370 | Temperature Gauge          |

| ITEM   | QTY | PART NO. | DESCRIPTION                      |
|--|-----|----------|----------------------------------|
| 20   | 1   | 34T37601 | Wire Harness                     |
| 21   | 1   | 37T35674 | Rubber Grommet                   |
| 22   | 1   | 37T37621 | Relay                            |
| 23   | 3   | 19T37518 | Sheet Metal Screw                |
| 24   | 1   | 36T37517 | Mounting Bracket, Dash           |
| 25   | 1   | 36T37516 | Face Plate, Dash                 |
| 26   | 5   | 43T36431 | 1/8 ODT Adapter                  |
| N.S.   | 1   | 48TA3953 | Solenoid Mounting Kit            |
| N.S.   | 1   | 36MK1007 | Bolt Kit                         |
| N.S.   | 6   | 28T35442 | Cable Ties                       |
| Additional Service Parts which are Sub Components included in the above Kit: |     |          |                                  |
| 27   | 1   | 37T37392 | SENSOR BOOT (Included w/Harness) |

# FA SERIES DISASSEMBLY AND REASSEMBLY

## (REFERENCE EXPLODED VIEW & PARTS LIST ON PAGES 2 & 3)

### DISASSEMBLY PROCEDURE

#### INPUT GEAR

1. Remove set screw #6.
2. Drive idler shaft #5 from PTO.
3. Remove input gear #1 and bearings #2 and shim #3.

#### INTERMEDIATE GEAR

1. Remove the Input gear set first.
2. Remove hex nut #13 from idler shaft #7. Note position of slot on shaft.
3. Using brass hammer or soft drift drive the idler shaft #7 from the housing #18. Be careful not to damage shaft end.
4. Remove the idler gear #10 and bearings #8 from unit.

#### OUTPUT GEAR

1. On the FA62 remove the output bearing cover #39.
2. Remove the 3 cap screws #41 from closed bearing cover #14.
3. Using brass hammer or soft drift drive output shaft #34 from housing #18 in the direction of clutch pack. Closed bearing cover #14 will go with the shaft.
4. Remove the output bearing #36 if it stays in the housing #18 when you drive the shaft #34 out.
5. Remove the pipe plug #43 from the end cover #14. Remove plastic plug #45 or any fittings in cover.
6. Using a punch with a small enough end to fit through the holes in flat of bearing cover #14. Drive the bearing #17 from the cover.
7. Using a bearing puller remove the bearings #17 & #36 (if Req.) from both ends of the output shaft #34.
8. Remove snap ring #19 from piston end #22 & #24 of shaft by pushing in on piston cup #22 and using a snap ring tool to remove ring #19.
9. Slide piston #24 and piston cup #22 from the end of shaft #34.
10. Remove the friction disks #25, spacer disks #27 and wave springs #26 from the shaft #34.
11. Remove snap ring #33 from gear side of bell gear #29 and remove gear #29, roller bearing #30, thrust washers #31 and thrust bearing #32.
12. Remove O-rings #4, #11, #12, & #15 from within housing #18.
13. Remove the O-rings #21 from the output shaft #34.

### REASSEMBLY PROCEDURE

*Lubricate O-rings prior to installation*

1. Place the bell gear #29 thrust washer #28 on to output shaft #34.
2. Place bell gear roller bearing #30 on to shaft #34.
3. Place bell gear #29 over the roller bearing #30 and slide against the thrust washer #28.
4. Place thrust washer #31 on to shaft and against bell gear #29.
5. Place thrust bearing #32 against thrust washer #31.
6. Place 2nd thrust washer #31 against thrust bearing #32.
7. Install snap ring #33 on output shaft #34 to hold thrust bearing #32 and bell gear #29 in place.
8. Install clutch plates into bell gear #29 by placing wave spring #26 on first, then a friction disk #25, then a spacer plate #27 and continuing until you have placed eight wave springs, seven friction disks, and six spacer disks in bell gear. Finish with a wave spring.
9. Install O-rings #21 on to the output shaft #34.
10. Install piston O-ring #23 onto piston #24 and push piston #24 all the way into piston cup #22. Piston #24 has a hub on it and it should be facing out as piston is installed into piston cup #22.
11. Push the piston/piston cup assembly onto the output shaft #34.
12. Push down on piston cup assembly while installing #19 snap ring.
13. Install O-ring #15 and #16 into bearing cover #14.
14. Install Ball bearing #17 into rear cover #14.

15. Install output shaft assembly into bearing cover #14 by taping bearing onto shaft evenly.
16. Install output shaft assembly into housing #18. Install output bearing #36 (FA64 must use sealed bearing) into housing and onto output shaft #34.
17. Install the 3 bearing cover cap screws #41.
18. Install output bearing cover #39 on FA62 series w/4 cap screws #40.
19. Install pipe plug #43 into bearing cover. It doesn't matter which pipe port.

### INSTALLING INTERMEDIATE SHAFT

*Lubricate O-rings prior to installation.*

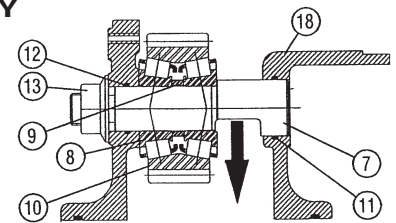
*Idler Gear is sold as an assembly only, and includes shim and bearings with pre-load established from the factory.*

1. Proper shimming of the tapered roller bearings are critical. Be sure to purchase gear and bearing as an assembly from factory.
2. Place tapered roller bearings #8 into intermediate gear #10 with spacer #9 and place this setup into housing #18.
3. Place O-rings #11 & #12 into intermediate gear location of housing and grease.
4. When installing idler shaft #7 make sure the groove for clearance to input gear is positioned towards aperture opening. Draw a line perpendicular to middle of slot. This line should point to center of input idler shaft.
5. Insert intermediate idler shaft #7 through the large hole in side of housing into gear and bearing set and press into place. Do not use nut to pull idler shaft into place.
6. Using lock nut #13, tighten on idler shaft #7 and torque to 18-25 Ft.Lb.

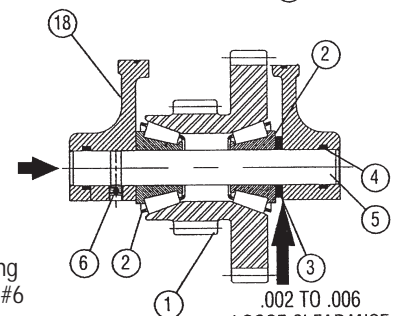
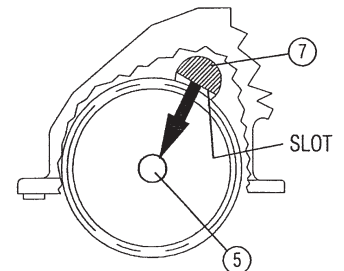
### INPUT GEAR ASS'Y

*Lubricate O-rings prior to installation*

1. Install input shaft ass'y O-rings #4. Place input bearings #2 into input gear #1.
2. Place input gear #1 into housing #18 so that gear clears internal interference on idler shaft #7 as described earlier in step 6 above.
3. Note location of set screw hole in housing and align hole in idler shaft as shaft is installed. Press idler shaft #5 through the two input bearings #2. Then drive shaft in the opposite direction approximately 1" until shaft #5 is just below #2 bearing surface. Using one of the shims #3 find largest shim that will push in between bearing and housing without having to hit it into place. This should give a clearance between shim #3 and housing #18 of .002" to .006" loose.
4. When proper pre-load is established, continue installing idler shaft #5 until set screw #6 hole lines up.
5. Install set screw #6.



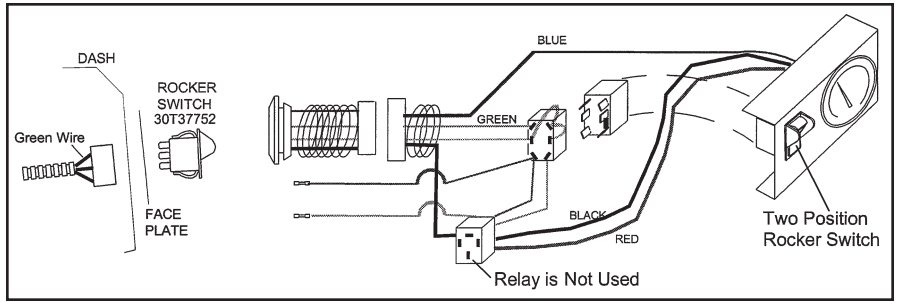
POINT SLOT TOWARDS IDLER SHAFT  
ALIGN MIDDLE OF  
SLOT WITH  $\phi$  OF  
INPUT IDLER SHAFT



.002 TO .006  
LOOSE CLEARANCE  
LOCATE SHIM ON  
THIS SIDE OF GEAR

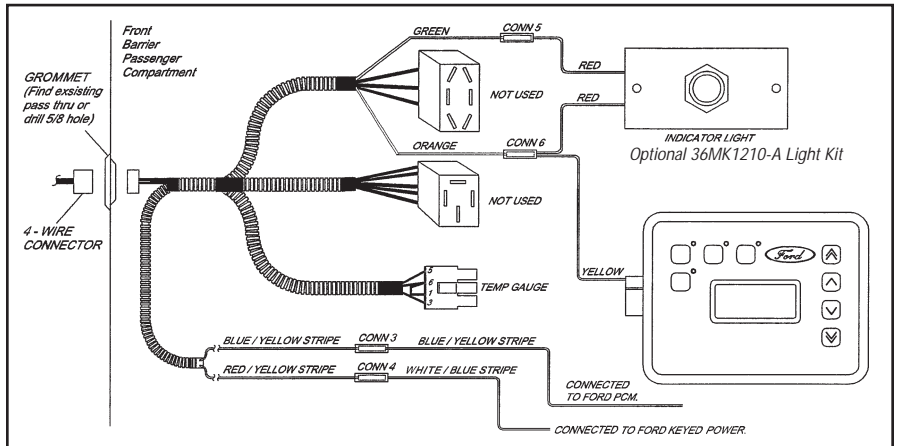
## TWO POSITION ONLY ROCKER SWITCH INSTALLATION (SHIFT CODE OPTION "Z")

1. The 2 position switch option does not change the way the harness or the rocker switch are installed. Refer to Steps 27 thru 41 of the FA Series PTO Owner's Manual (IN97-05) for the basic instructions. In this "Z" option the relay (PN 37T37621) is not used, and the socket remains on the harness unused.
2. When installing "Z" option the rocker switch note that the wire harness connector has a green wire, which should be positioned at the top; this will line up with the green light on the rocker switch (PN 30T37752).
3. Installation does not require any modification to the existing wiring harness.



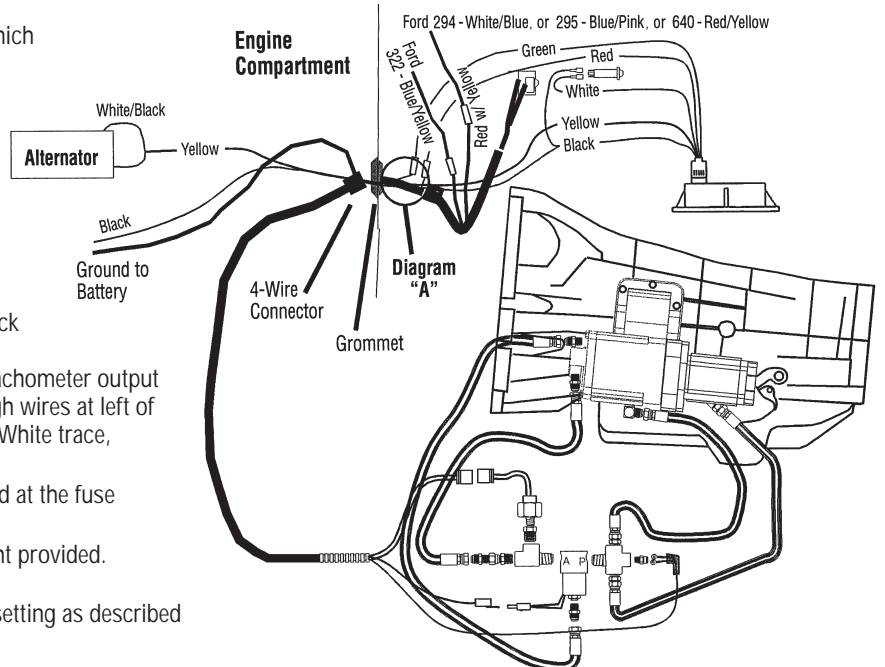
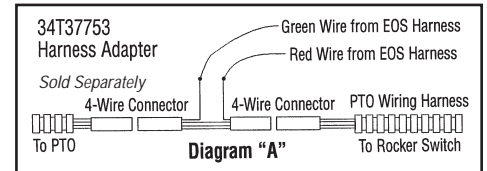
## PTO INSTALLATION WITH FORD SUPPLIED APCM (DEALER OPTION ONLY)

1. Muncie harness PN 34T38267.
2. Connect the new harness as shown in the figure.
3. The standard rocker switch is not used, install a PTO indicator light in clear view of operator while seated in driver's seat. Order 36MK1210-A separately.



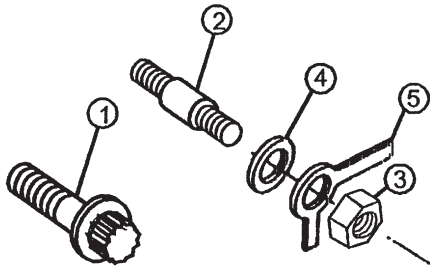
## PTO INSTALLATION WITH EOS-110 SPEED SWITCH

1. Make the PTO installation as described in Steps 1-41 of the FA Series PTO Owner's Manual (IN97-05).
2. Find the 4-wire connector on the Muncie PTO Harness and plug in the wire harness adapter 34T37753. The adapter is designed to assemble only in one direction.
3. Find the Red wire on this adapter harness which goes to the 4-wire connector and connect this wire to the EOS harness Red wire as shown in Diagram "A".
4. Connect the EOS Green wire to the Green wire on the adapter harness as shown in Diagram "A".
5. The Ford supplied alternator should have a three wire connector plugged into it with a Light Green w/Red, an Orange w/Light Blue, and a White w/Black Stripe. The White w/Black is the wire to splice into for the Yellow EOS wire. For 2002 model year, there is a clean tachometer output circuit located with body builder pass-through wires at left of steering column. Circuit #76, Light Green w/White trace, connect this to the Yellow EOS wire.
6. Connect the Black EOS wire to a good ground at the fuse panel or battery (not to the cab).
7. Connect the White wire to the Overspeed light provided. Ground the other terminal of the Light.
8. Mount the EOS after making the calibration setting as described in the EOS installation manual (IN88-01).



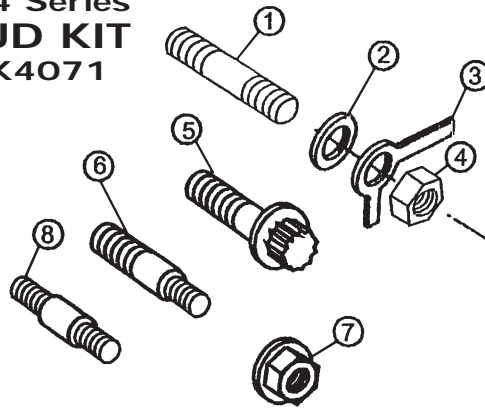
# FA SERIES STUD KITS

## FA62 Series STUD KIT 20TK4070



| ITEM | QTY | PART NUMBER | DESCRIPTION                 |
|------|-----|-------------|-----------------------------|
| 1    | 4   | 19T37727    | 12 pt. Metric Capscrew 25mm |
| 2    | 2   | 20T37914    | Alignment Stud              |
| 3    | 2   | 22MX3824    | Hex Nut                     |
| 4    | 2   | 13M18018    | Copper Washer               |
| 5    | 2   | 21MX3802    | Lock Tab                    |

## FA64 Series STUD KIT 20TK4071



| ITEM | QTY | PART NUMBER | DESCRIPTION                          |
|------|-----|-------------|--------------------------------------|
| 1    | 1   | 20M39045    | 10mm Stud                            |
| 2    | 3   | 13M18018    | Copper Washer                        |
| 3    | 3   | 21MX3802    | Lock Tab                             |
| 4    | 3   | 22MX3824    | Hex Nut                              |
| 5    | 2   | 19T37727    | 12 pt. Metric Capscrew 30mm          |
| 6    | 1   | 20T37224    | Step Stud                            |
| 7    | 1   | 22T37605    | Lock Nut                             |
| 8    | 2   | 20T37914    | Alignment Stud                       |
| N.S. | 1   | 13T37626    | Hego (O <sub>2</sub> ) Sensor Gasket |

## DECAL PACK FOR ALL FA SERIES • 52TK3963

| ITEM | QTY | PART NUMBER | DESCRIPTION                         |
|------|-----|-------------|-------------------------------------|
| 1    | 2   | 36M35644    | Frame Label                         |
| 2    | 1   | 36T37507    | Visor Label                         |
| 3    | 1   | 36T37513    | Warning Label                       |
| N.S. | 1   | IN97-05     | PTO Installation and Owner's Manual |

2

UNDERSTAND THIS LABEL BEFORE USING POWER TAKE-OFF (PTO)

WARNING

**NEVER GET UNDER THIS TRUCK IF THE ENGINE IS RUNNING!**

Hands, clothes, hair, etc. can get caught on spinning shafts and U-joints.

**YOU MAY BE HURT OR KILLED.**

It is against Federal Law to try to fix PTO driven machinery if the engine is running. Always turn the engine off. Then, put the keys in your pocket. (OSH 1910.147)

Part No. 36T37507

**HOW TO USE THE POWER TAKE-OFF (PTO)**  
*Clutch Shift PTOs for the Light Truck Automatic Transmissions*

For Stationary Applications:

1. Place Transmission Selector in Park.
2. Let Engine Idle.
3. Engage PTO Rocker Switch.
4. Release PTO Switch.
5. Green Light Should Activate.
6. Bring Engine Slowly to Operating Speed.

For Mobile Applications:

1. Follow Procedures Above.
2. Apply Brakes.
3. Place Shift Selector in Any Drive Range
4. Release Brakes.

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LOCATE ON VISOR

DANGER

**NEVER GET UNDER THIS TRUCK IF THE ENGINE IS RUNNING!**

Part No. 36M35644

YOU MAY BE HURT OR KILLED

PELIGRO

**¡NUNCA SE META DEBAJO DEL CAMION CUANDA EL MOTOR ESTÉ EN MARCHA!**

© Muncie Power Products, Inc. 1991

LOCATE ON FRAME RAIL

1

CAUTION

THIS VEHICLE IS EQUIPPED WITH A POWER TAKE-OFF

READ & FOLLOW OPERATING INSTRUCTIONS BEFORE USING THIS EQUIPMENT. (SEE SUN VISOR)

TRANSMISSION OIL IS NOT TO EXCEED 250°F SHUT OFF THE PTO IF TEMPERATURE EXCEEDS THIS VALUE ON GAUGE.

Muncie® Power Products

Part No. 36T37513

LOCATE NEAR PTO CONTROL

3



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Drive Products, Inc., Toronto, Exclusive Agents for Canada

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