



Muncie<sup>®</sup>  
Power  
Products

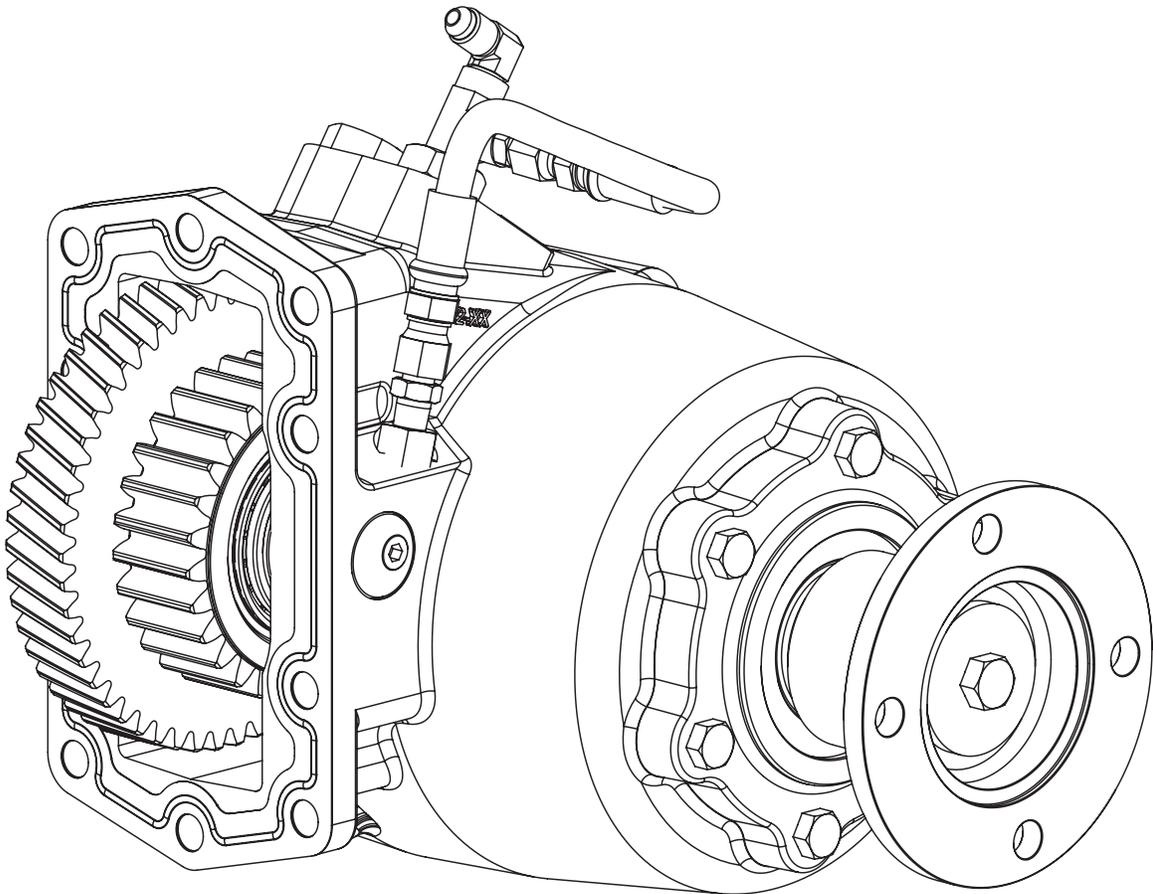
# CS40/41 SERIES CLUTCH SHIFT PTO

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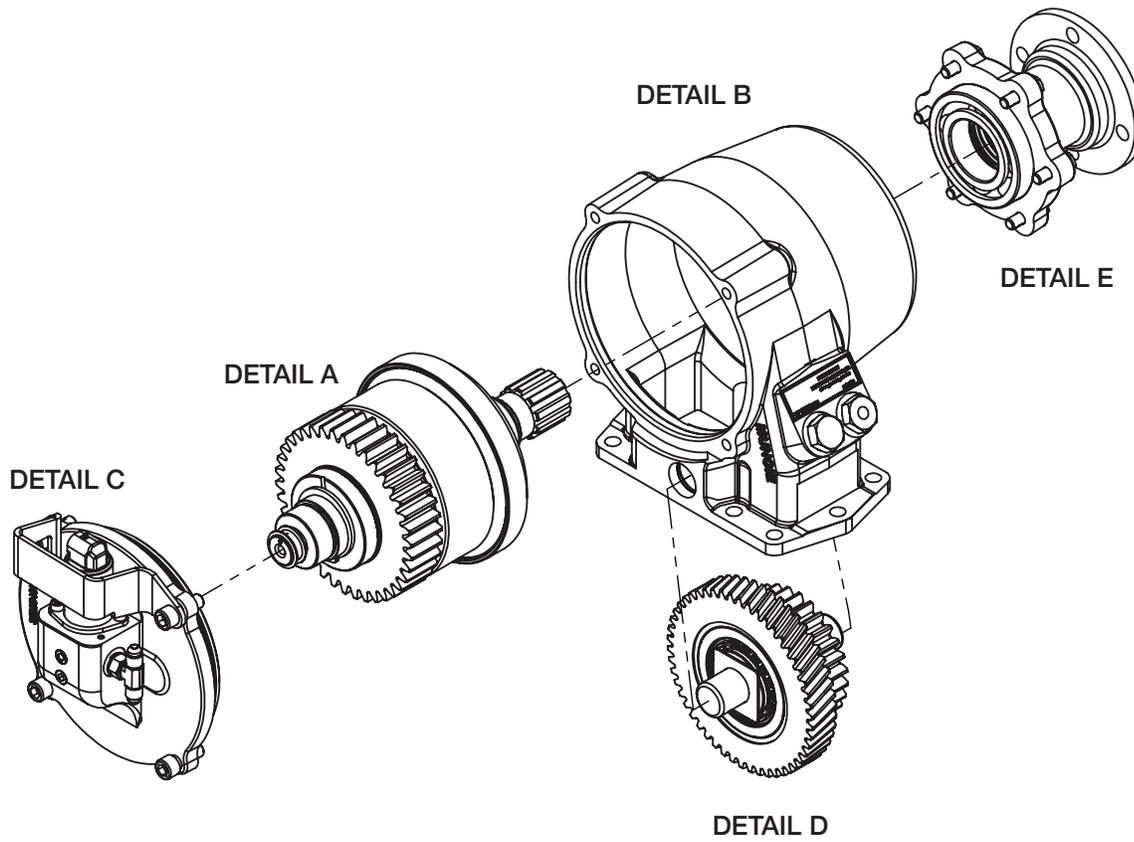
PARTS LIST AND SERVICE MANUAL

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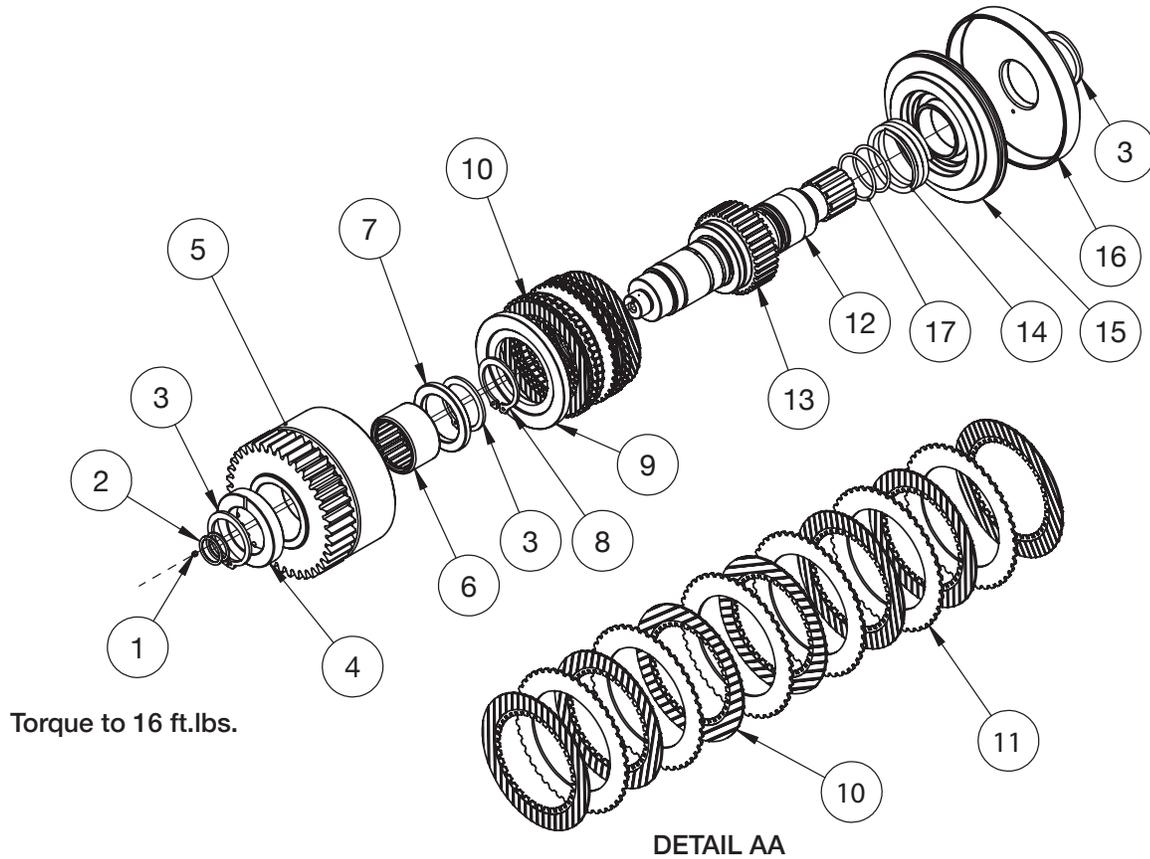
FOR UNITS BUILT AFTER OCTOBER 2019



# CS40/41 Series — Exploded View

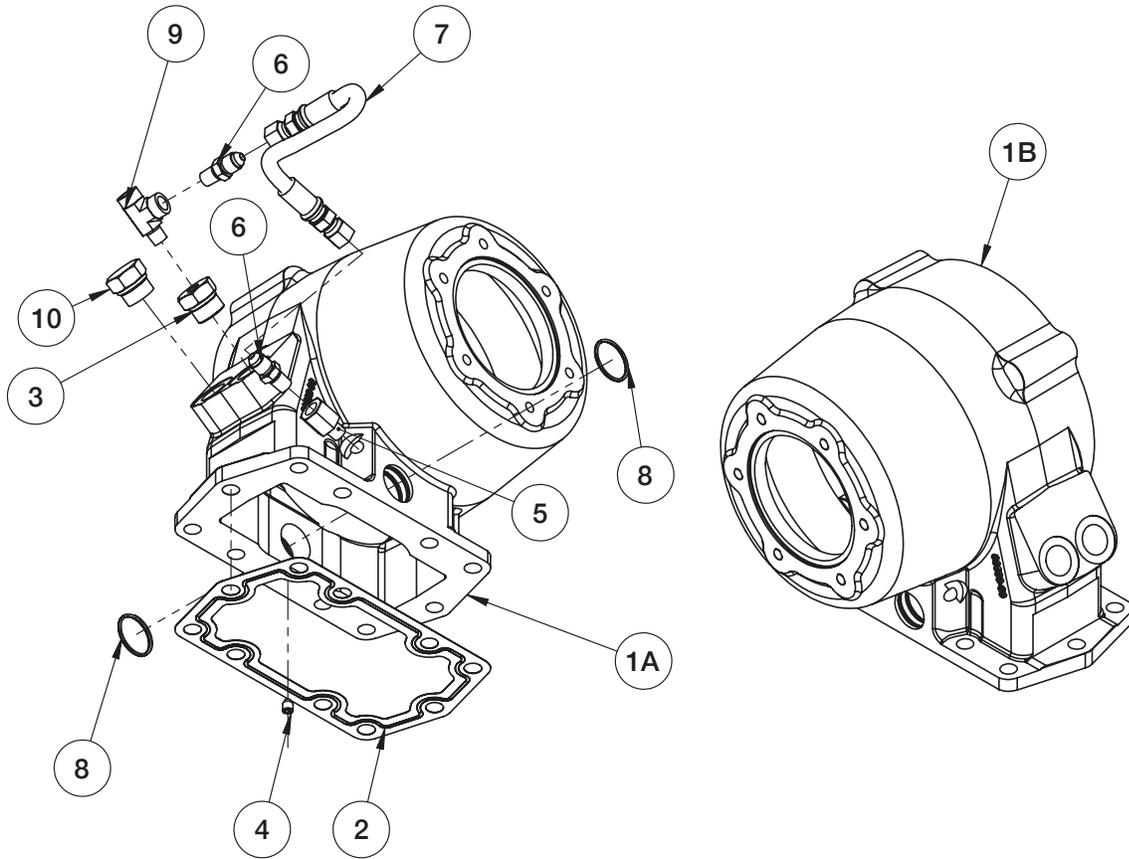


## Detail A – Output Shaft Assembly



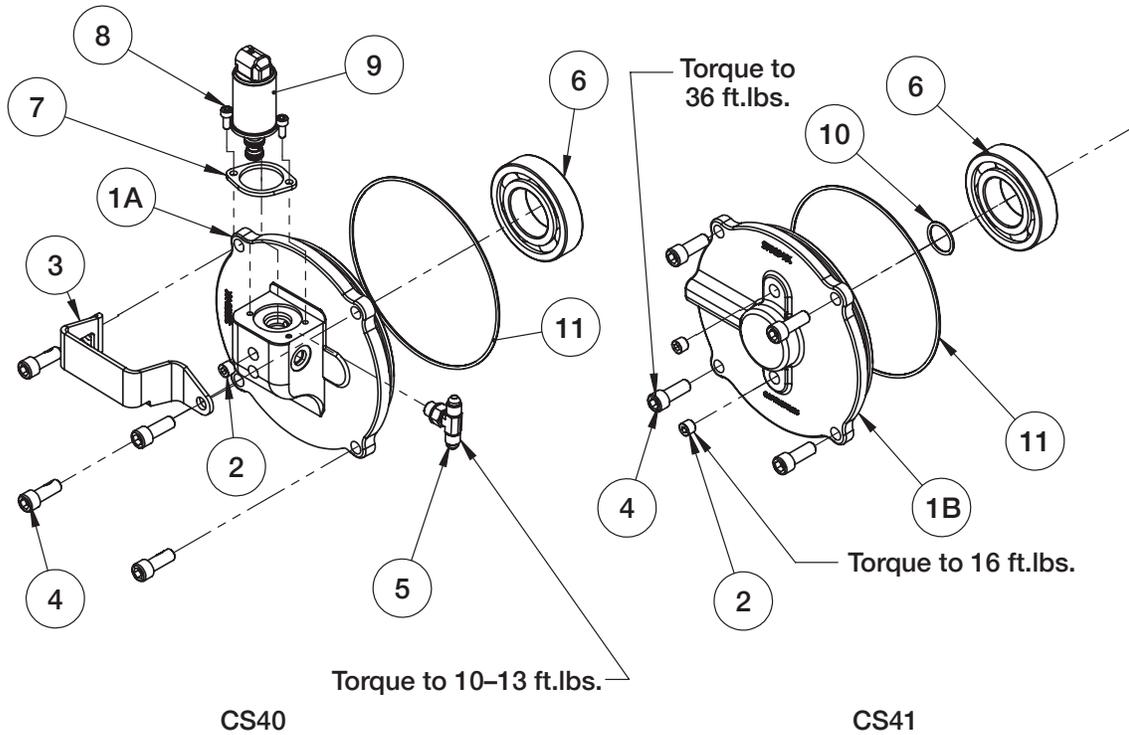
ITEM	QTY	PART NO	DESCRIPTION
1	1	19T64341	Set Screw
2	2	12T36081	O-Ring 188-80 Durometer
3	3	24T36040	Snap Ring
4	1	10T38691	Thrust Ring
5	1	02T42697	Output Ratio Gear – 07 – 38T
		02T62618	Output Ratio Gear – 10 – 32T
		02T62619	Output Ratio Gear – 12 – 30T
6	1	10T62370	Bearing Needle Roller
7	1	10T38696	Spacer
8	1	24T36040	Snap Ring
9	1	49T64419	Flange Ring
10	7	49T33564	Friction Disc
11	6	49T38230	Steel Spacer Disc
12	1	06T64398	Output Shaft CS40 -10T PF "C"
		06T64688	Output Shaft SAE "C" 1¼" -14T ID Spline "E", "Y", "Z", "V"
		06T65288	Output Shaft SAE "B" 1" -15T Spline "P"
		06T64689	Output Shaft -8T Din Spline "I", "2"
13	1	49T64420	Clutch Hub
14	1	27T36112	Spring
15	1	49T38693	Piston
16	1	49T38694	Cover Plate
17	2	12T36053	O-Ring, Viton

## Detail B – Housing Assembly



ITEM	QTY	PART NO	DESCRIPTION
1A	1	01T42635	1 – Arrangement Housing
1B	1	01T42634	3 – Arrangement Housing
2	1	13T35777	Mounting Gasket
3	1	25T35784	Lubrication Port
4	1	19T36082-01	Set Screw
5	1	43M02203	NPT-2 Orifice Fitting
6	2	43T37503	NPT-2 to JIC Adapter
7	1	45T36308	Hose
8	1	12T35577	O-Ring
9	1	43T39129	NPT-2 Run Tee Fitting
10	1	25T35999	Plug

## Detail C – End cover

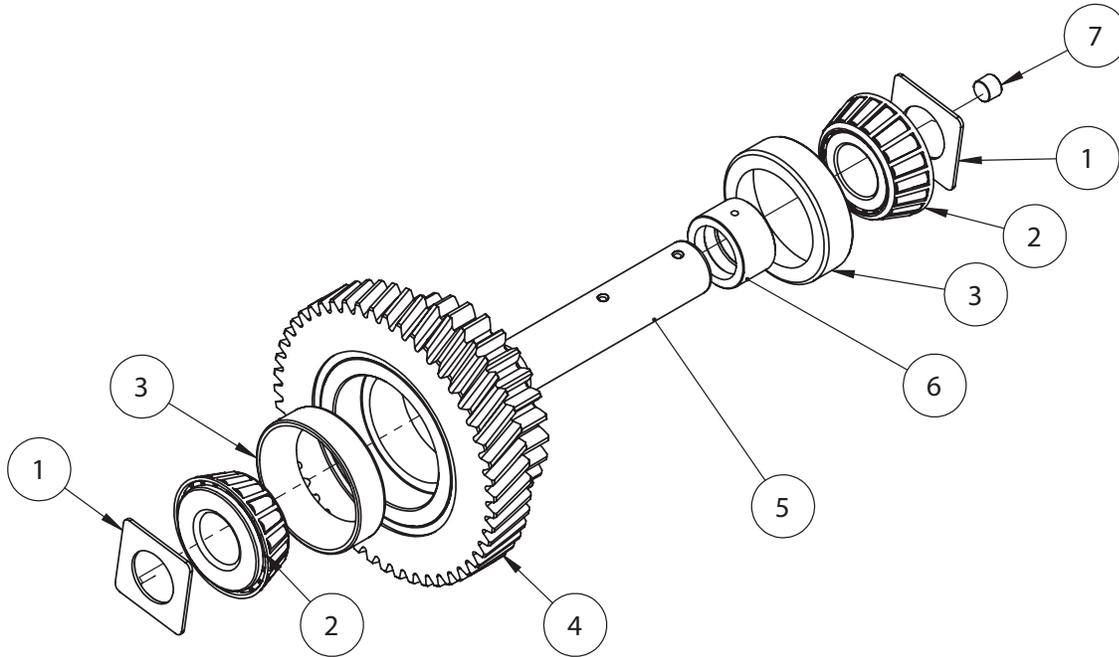


ITEM	QTY	PART NO	DESCRIPTION
1A	1	15T62755	CS40 Cover for Muncie Start® Solenoid
		15T64193	CS40 Cover – Standard Solenoid
1B	1	15T39288	CS41 Cover
2	2	25T21684	Pipe Plug 1/8"
3	1	49T41288	Protector
4	4	19T39418	UNC Socket Head Cap Screw with Locking Patch
5	1	43T36231	Tee Fitting
6	1	10T35994	Ball Bearing Single Row, Radial
7	1	49T62436	Clamp Ring Drop in Solenoid*
8	2	19T62950	Cap Screws – Muncie Start® Solenoid
		19T40859	Cap Screws – Standard Solenoid
		35T62496	Muncie Start® Solenoid Valve
9	1	35T40864	24 V Standard Solenoid Valve
		35T40860	12 V Standard Solenoid Valve
10	1	12T36081	O-Ring
11	1	12T36207	O-Ring

**Note:**

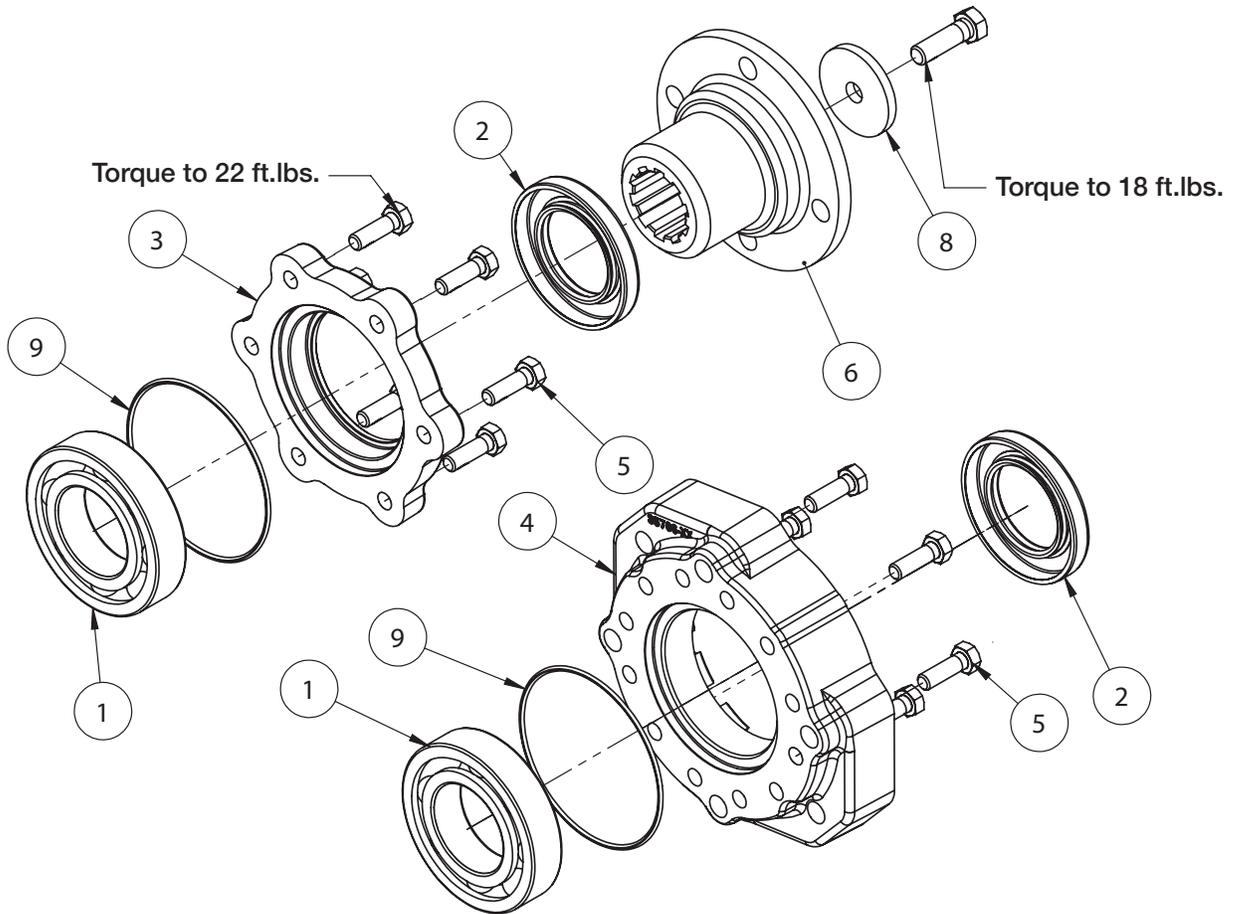
\* Muncie Start® only.

## Detail D – Input Gear Assembly



ITEM	QTY	PART NO	DESCRIPTION
1	2	18T42638	Thrust Washer
2	2	10T38684	Bearing
3	2	10T38685	Bearing Cup
4	1	03T42692	Input Gear – A1007
		03T42693	Input Gear – A1008
		03T42694	Input Gear – A1009
		03T42695	Input Gear – A1010
		03T42696	Input Gear – A1012
5	1	07T38689	Shaft, Idler
6	1	18T39246	Cone Spacer
7	1	25T21684	Pipe Plug, 0.125-27 NPTF Thread

## Detail E – Output Assembly



ITEM	QTY	PART NO	DESCRIPTION
1	1	10T35775	Bearing
2	1	11T64141	Spacer
3	1	15T39226	Cover "2" & "C"
4	1	14T36834	Hydraulic Flange "I"
		14T40576	Hydraulic Flange "E"
		14T43198	Hydraulic Flange "V"
		14T36007	Hydraulic Flange "Y"
		14T39188	Hydraulic Flange "Z"
5	6	19T32740	Cap Screw, HH 5/16-18 x 1"
6	1	14T31499	Companion Flange
7	1	19T38266	Cap Screw
8	1	21T20092	Washer

# Model Number Construction

**CS 41 - A10 07 - H 1 C X**

## PTO Type

CS—Clutch Shift

## Mounting

40—10-Bolt Mount

41—10-Bolt Mount – Remote Solenoid

## Transmission Input Gear Options

A10—Allison 10.16P RH

## Speed Ratios

07—0.74:1

10—1.06:1

12—1.20:1

## Shift Types

H—12 V Electric Hydraulic

J—24 V Electric Hydraulic

## Special Features

X—None

B—Hose Kit (HD Trans. R.S.)

D—Pulse Gen. & SPD-2000

U—Pulse Generator

3—Spl. Hose Kit 17"

6—Muncie Start® Stationary  
OR Mobile

## Output Types

C—1410 Companion Flange

E—SAE "C" 1¼" -14T, SAE "C"

2- & 4-Bolt

I—DIN 5462

P—SAE "BB" 1" -15T, SAE "B"

2- & 4-Bolt

V—Muncie Extended Shaft\*

Y—SAE "C" 1¼" -14T, SAE "C"

2-Bolt Only

Z—SAE "C" 1¼" -14T, SAE "B"

2- & 4-Bolt

2—DIN 100 Companion Flange

## Assembly Arrangement

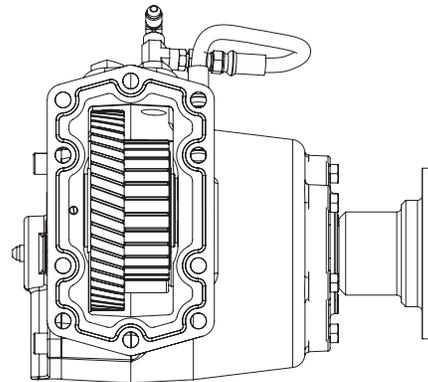
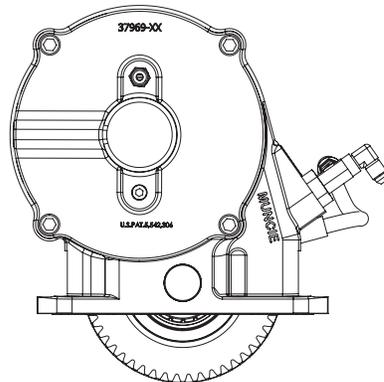
1—Right Side Shaft Low

3—Left Side Shaft Low

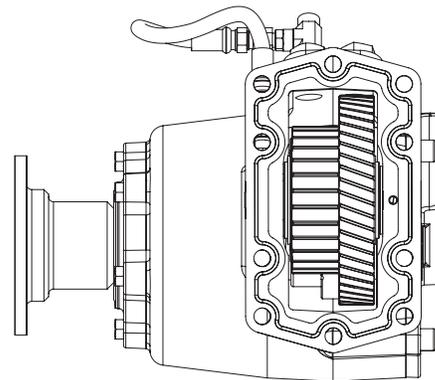
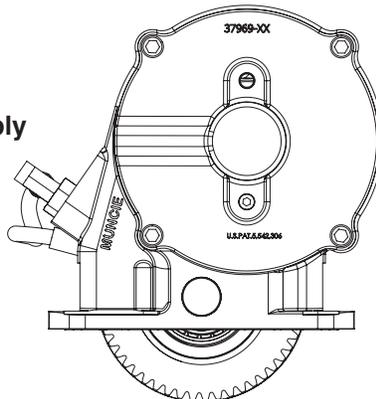
## Note:

\*Extended Shaft not included

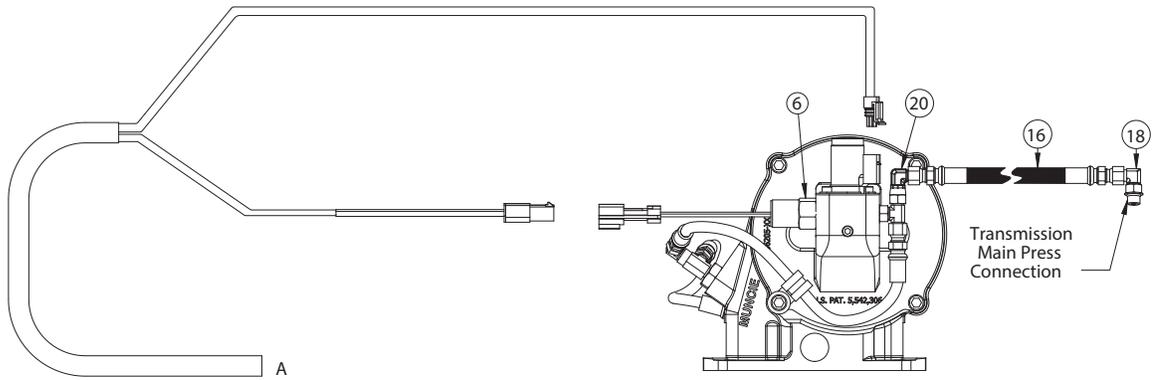
**No. 1 Assembly**



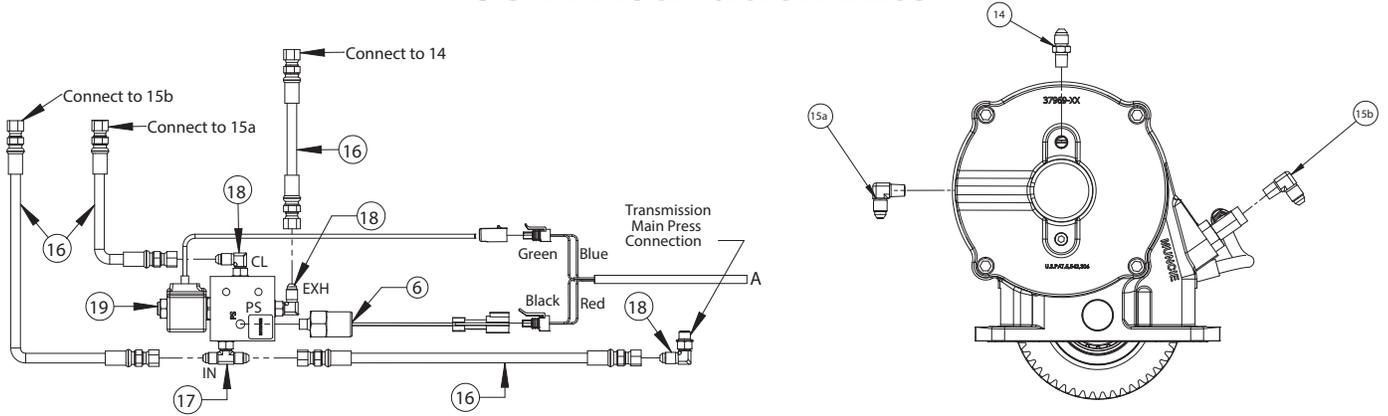
**No. 3 Assembly**



## CS40 Activation Kits



## CS41 Activation Kits



### CS41 Electrical System – 48TK3882 (12 V), 48TK3891 (24 V)

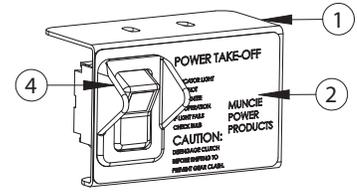
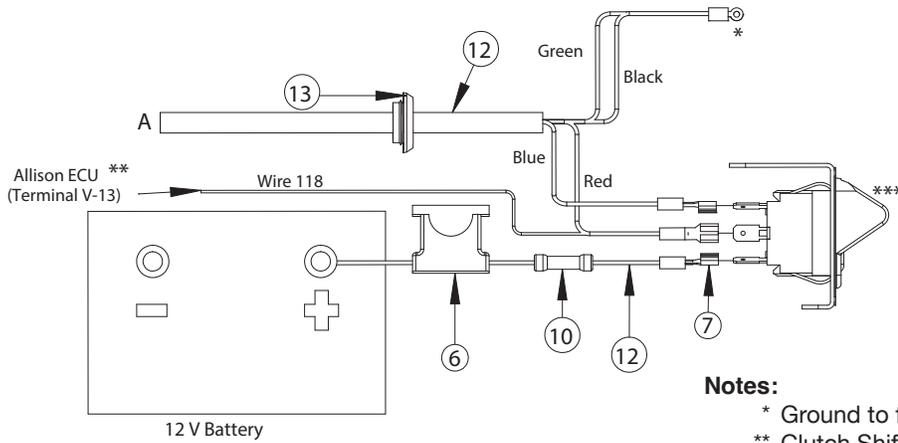
ITEM	QTY	PART NO	DESCRIPTION
1	1	36MA1005	Switch Bracket
2	1	36M01006	Face Plate for Overspeed Light
	1	36T36271	Face Plate Without Overspeed Light
3	1	32MSR12V	12 V Light Assembly
3a	1	32MSR24V	24 V Light Assembly
4	1	30T35687	12 V Rocker Switch
4a	1	30T35712	24 V Rocker Switch
5	1	33T36299	Fuse Assembly
6	1	30T60228	Pressure Switch
7	3	34M18250	Female Spade Connector
8	1	34M18009	Ring Terminal
9	2	34M18187	Female Spade Connector
10	1	34M18002	Butt Splice
11	1	34T35872	Wire Harness
12	1	37T42506	Wire Harness
13	1	37T35674	Grommet
N.S.	1	36MK1007	Bolt Kit
N.S.	1	43M05522	Elbow

**For 24 V option – 48TK3891:**

Include items 1 & 2 and substitute items 3 & 4 with 3a & 4a.

Muncie Power Products, Inc.

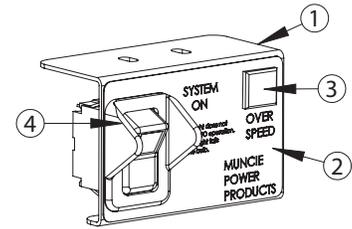
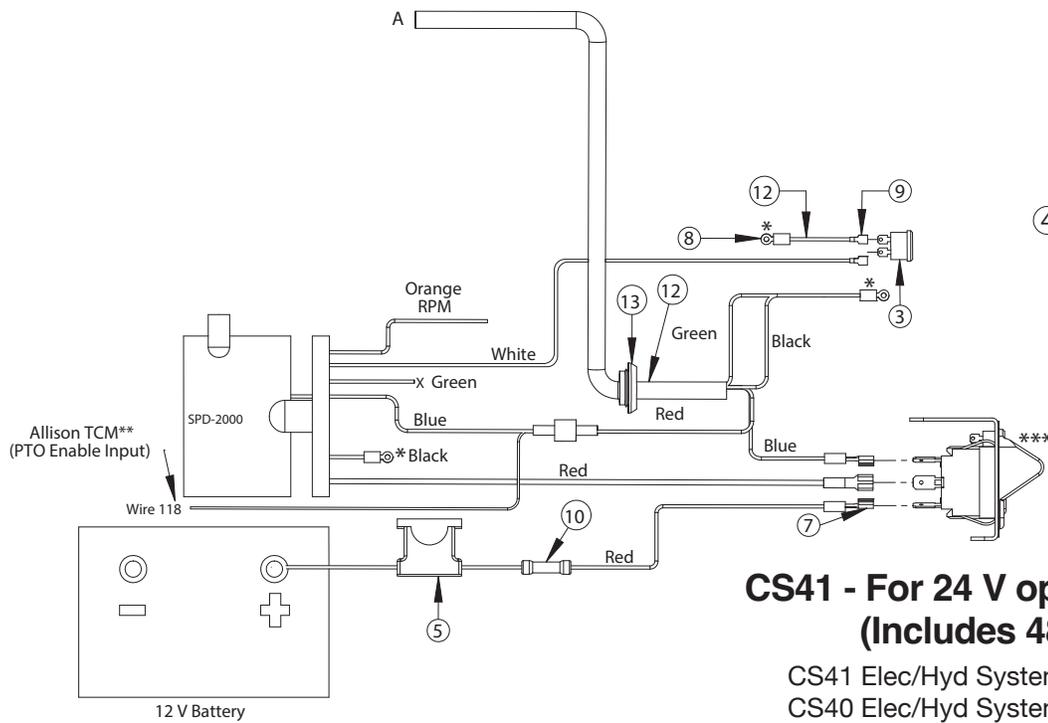
# Circuit Installation *WITHOUT* Overspeed Switch



**Notes:**

- \* Ground to frame
- \*\* Clutch Shift PTO's require connection to Allison "PTO Enable Input" circuits. Check with the vehicle dealer or body builder's information for location.
- \*\*\* Green light in the rocker switch is to turn "ON" when the PTO is engaged and turn "OFF" when the PTO is disengaged.

# Circuit Installation *WITH* Overspeed switch



## CS41 - For 24 V option – 48TK4893 (Includes 48TK3891):

CS41 Elec/Hyd System – 48TK4894 (12 V)  
 CS40 Elec/Hyd System – 48TK4892 (12 V)  
 (Both Kits Include 48TK3882)

ITEM	QTY	PART NO	DESCRIPTION
14	1	43T37503	7/8" NPT/JIC Fitting
15A	1	43T35867	7/8" NPT/JIC Elbow
15B	1	43T35867	7/8" NPT/JIC Elbow
16A	4	45T36274	Hose Assembly
17	1	43T36231	Straight Branch Tee
18	3	43M68014	7/16" -20 Straight Thread Elbow
19A	1	35T37928	12 V Valve
19B	1	35T37967	24 V Valve

# CS41 Disassembly and Reassembly

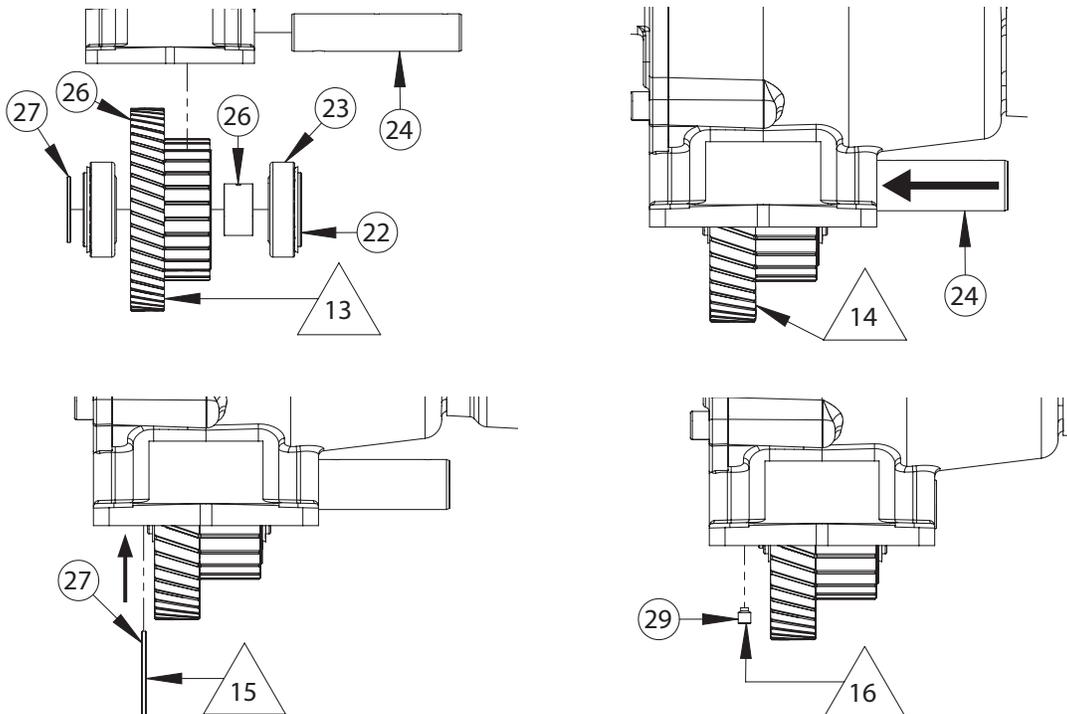
(Reference Exploded View on Pages 2 & 3)

## Disassembly Procedure

1. Remove the CS41 input gear (26) by removing the set screw (29) in the mounting pad and driving the idler shaft (24) from the PTO housing (37).
2. Remove the four large socket cap screws (17) from the bearing cover (18).
3. Position the housing against a bench block and hit the end of the output shaft (6) with a soft face hammer to remove the entire output shaft assembly with the bearing cover (18).
4. Remove the two pipe plugs (16) from the bearing cover (18) to expose the ball bearing assembly within the cover.
5. Using a 1/4" punch and alternating between the two holes drive the bearing and output shaft assembly from the bearing cover (18).
6. Using snap ring pliers, remove the snap ring (1) located on the output shaft end while gently pushing on the piston cup (15).
7. Pull the piston cup (15) from the shaft and the piston (13) will go with it.
8. Tap the piston cup on a wood surface to remove the piston.
9. Remove the spring (11). The clutch friction discs (9), spacer discs (10), and spacer ring (8) can be removed by pointing the shaft end down.
10. The snap ring (1) on the opposite end of the bell gear can be removed with snap ring pliers. This allows the thrust ring (2) and the bell gear (4) to be removed towards the closed end. The internal bearing (3) of the bell gear can then be removed.

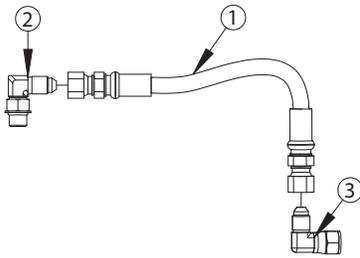
## Reassembly Procedure

11. The reassembly of the unit is made in reverse of the disassembly. The re-use of seals, o-rings and snap rings are not recommended. See page (4) for gasket and rebuild kits.
12. Be sure to lubricate all o-rings and bearings upon installation. Torque all the capscrews to the appropriate values or to the following values: 5/16" cap screws 18 ft.lb.; 3/8" cap screws 36 ft.lb.; 1/4" set screw 9 ft.lb.
13. The input gear (26) is replaced as a set which includes the gear (26), cone spacer (25), bearings (22/23) and a shim (27). Slide this sub assembly into the housing to line up the idler shaft (24).
14. Insert the input gear assembly into the housing. Tap the idler shaft (24) into the housing and through each of the bearing races.
15. Tap the idler shaft in the reverse direction so that it is flush with the bearing in this assembly. Next, place the shim (27) between the bearing (22/23) and the housing (on the set screw side of the mounting pad). Rotating the gear to make sure it easily rotates. The recommended bearing pre-load is .002" to .006" loose (the cone spacer sets this pre-load and the measurement is not required).
16. Tap the idler shaft (24) into position and install the set screw (29).



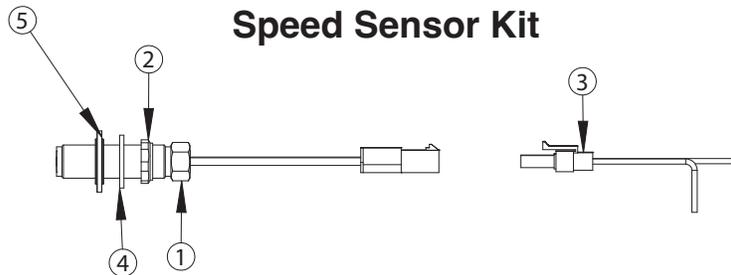
# Accessory Kits

## INSTALLATION HOSE KIT



### 43TK4036 - Hose Kit for CS40 Series PTO

ITEM	QTY	PART NO	DESCRIPTION
1	4	45T36274	Hose Assembly Std. (28")
2	3	43M68014	Elbow (Transmission)
3	1	43T36445	Elbow (As needed)
N.S.	2	43T35867	Elbow
N.S.	1	43T36231	Tee Fitting



## Speed Sensor Kit

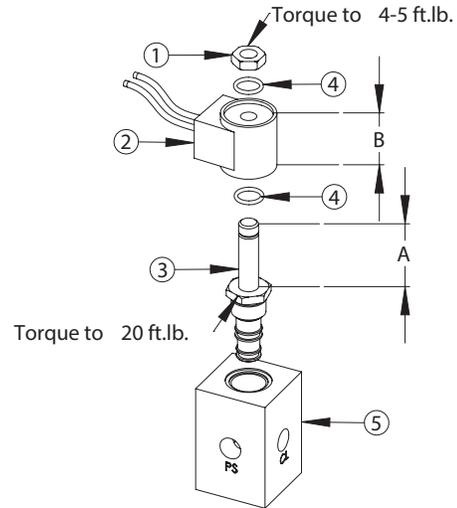
### 31TK3873 – Speed Sensor Kit for Special Option “U”

ITEM	QTY	PART NO	DESCRIPTION
1	1	31T35108	Mag Pickup
2	1	21T35109	Jam Nut
3	1	34MA1415	Wiring Harness
4	1	21T36099	Flat Washer
5	1	12T35774	O-Ring

Dim A = 1.84 Dim B = 1.77

\*3 is NOT sold separately

## CS41 SOLENOID



ITEM	QTY	PART NO	DESCRIPTION
1	1	22T39429	Nut
2	1	37T39088A	12 V Coil
	1	37T38997A	24 V Coil
3*	1	35T39577	Stem
4	2	12T39408	O-Ring
5	1	N/A	Manifold Block

## Bolt Kit

### Torque Cap Screws and Studs to 45 ft.lb. 20TK6353 – Bolt Kit for CS40/41 Series PTO

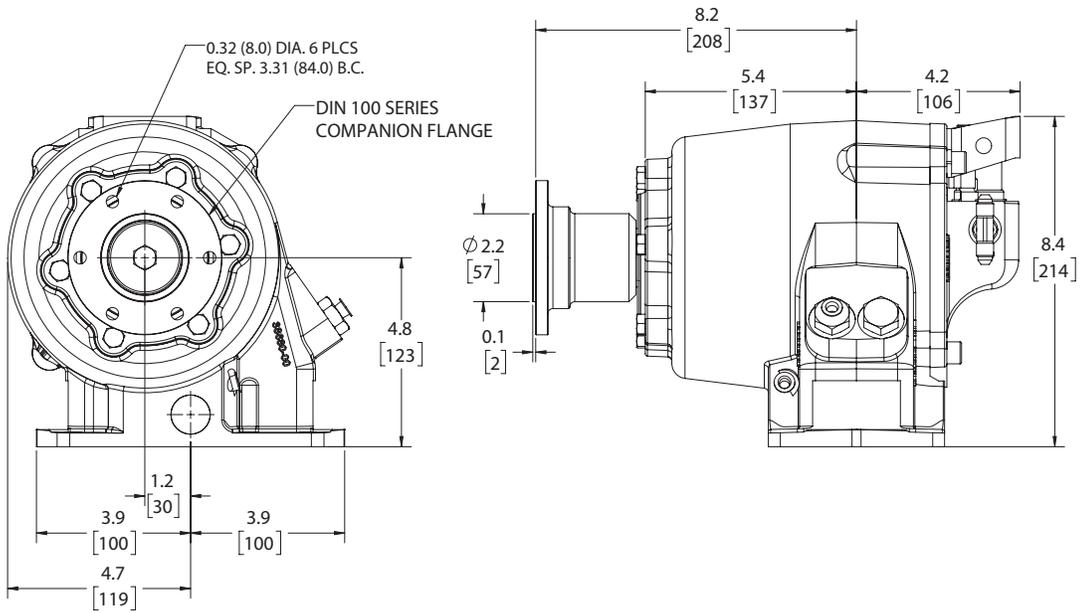
QTY	PART NO	DESCRIPTION
8	19T64314	Cap Screw
2	30T62753	Alignment Stud
8	21T64303	Flat Washer

## Rebuild and Gasket Kits

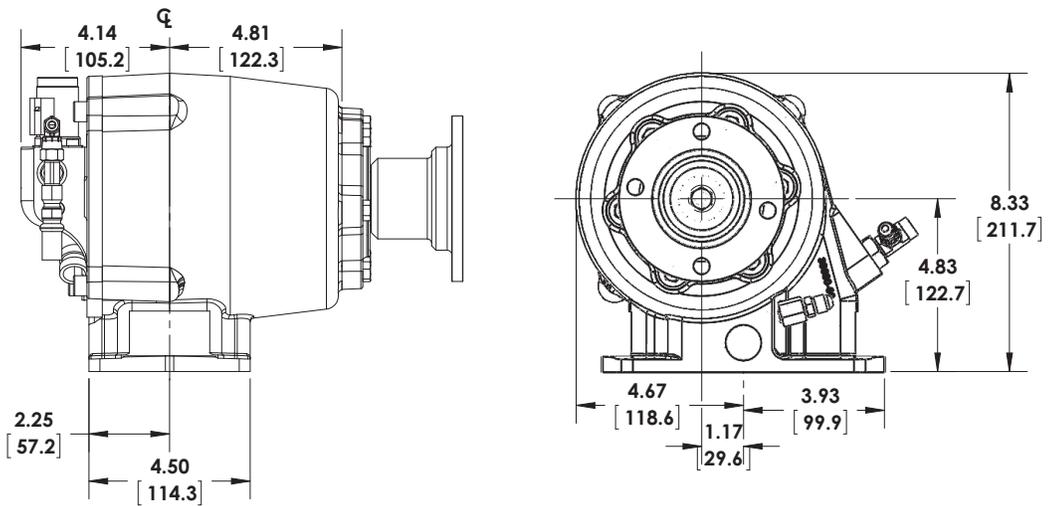
ITEM	QTY	PART NO	DESCRIPTION
1	1	CS41-RBK	Rebuild Kit Includes: [(3)1, (1)2, (1)3, (1)5, (1)8, (7)9, (6)10, (1)11, (2)12, (1)14, (1)19, (1)20, (1)21, (1)28, (1)29, (2)30, (1)38, (1)39, (1)40]
2	1	CS41-GSK	Gasket Kit Includes: [(2)12, (1)14, (1)19, (1)20, (1)28, (2)30, (1)39, (1)40]

**IMPORTANT:** The CS40/41 includes the mounting kit, special shim/gasket, high pressure hose hook-up kit, wiring harness, dash bracket kit and installation instructions. The PTO is available with a pulse generator pickup for use with the Muncie Power overspeed switch SPD-2000 to control the engagement or overspeed protection of the PTO. Contact your Muncie Power Application Specialist for assistance with this option.

# Mounting Dimensions in Inches (MM)

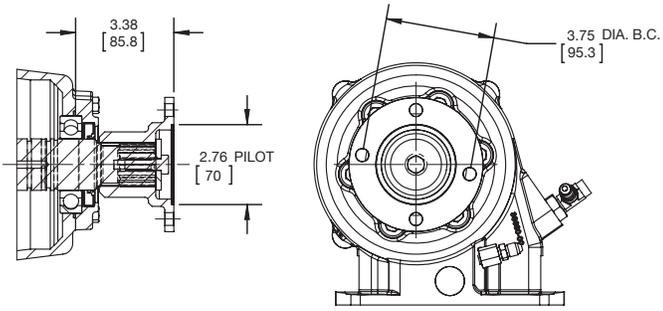


**CS40 SERIES 1½" -10 SPLINE W/DIN 100 FLANGE ("2" OPTION)**

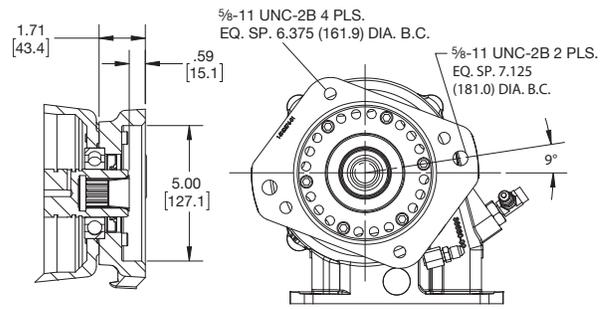


**CS41 SERIES 1½" -10 SPLINE W/1410 SERIES FLANGE ("C" OPTION)**

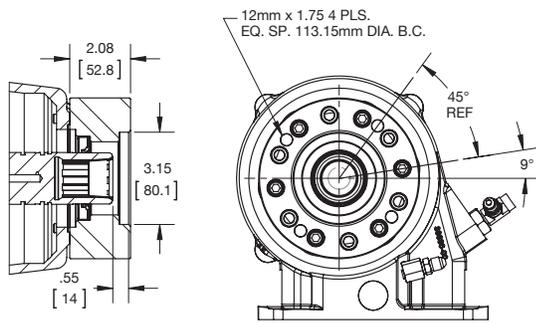
# Dimensions



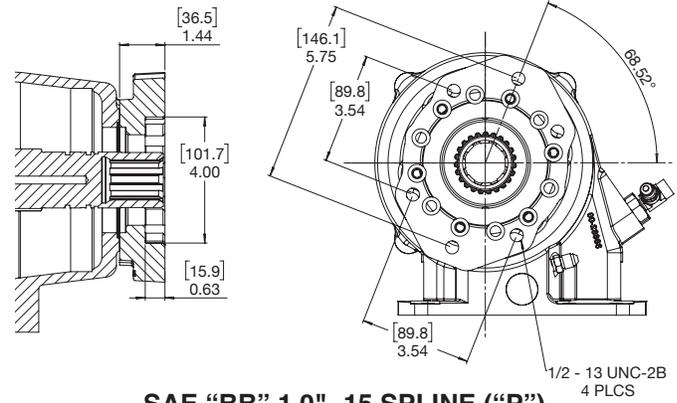
**1 1/2" -10 SPLINE W/1410 SERIES FLANGE ("C")**



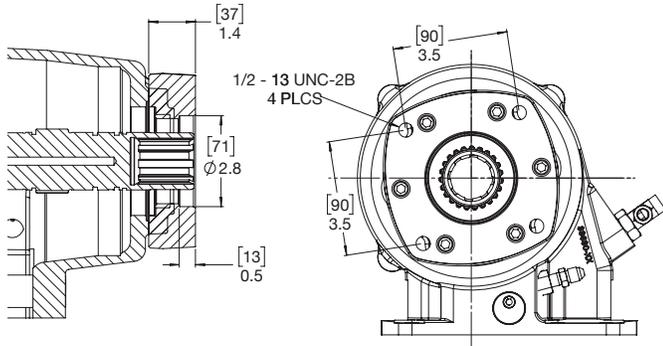
**SAE "C" 2 & 4-BOLT 1 1/4" -14 SPLINE ("E")**



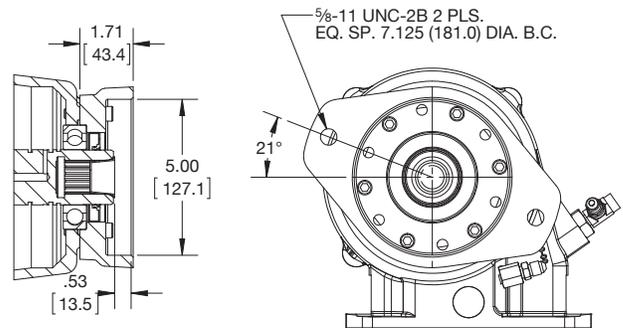
**DIN 5462 36MM -8 SPLINE ("I")**



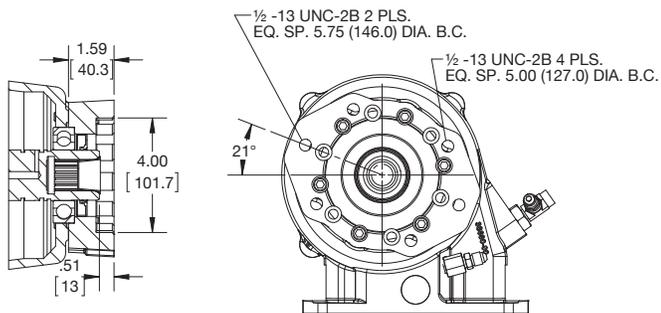
**SAE "BB" 1.0" -15 SPLINE ("P")**



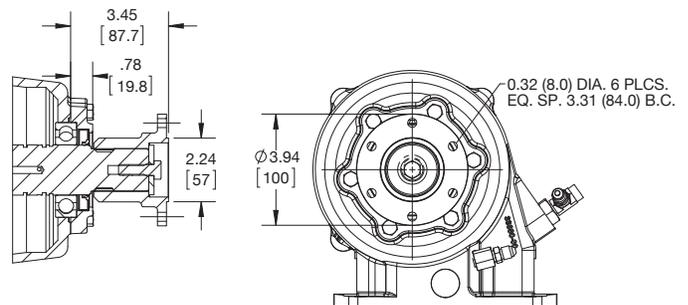
**SAE "C" 1 1/4" -14T SPLINE ("V")**



**SAE "C" 2-BOLT 1 1/4" -14 SPLINE ("Y")**



**SAE "B" 2 & 4-BOLT 1 1/4" -14 SPLINE ("Z")**



**1 1/2" -10 SPLINE W/DIN 100 FLANGE ("2")**

# Notes



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