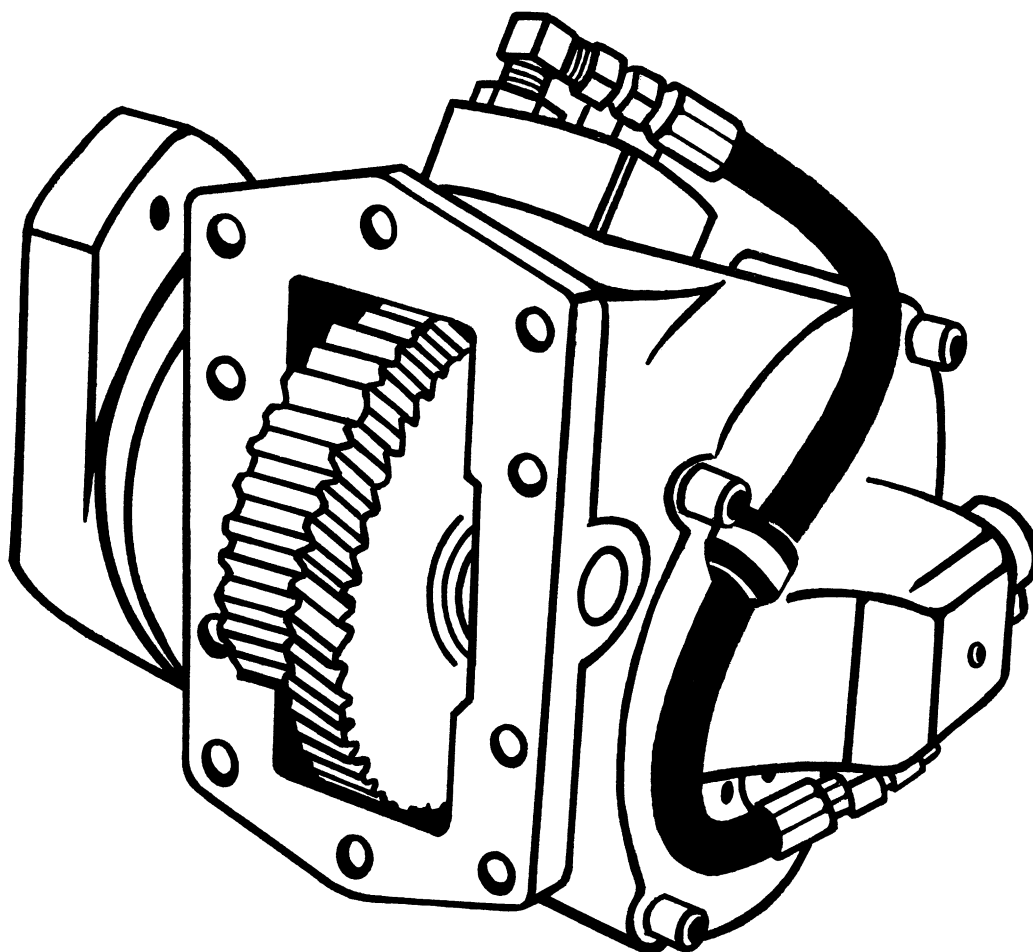




# CS10 & CS11 SERIES **CLUTCH SHIFT PTO** PARTS LIST AND SERVICE MANUAL

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*U.S. Pat. 5,542,306*

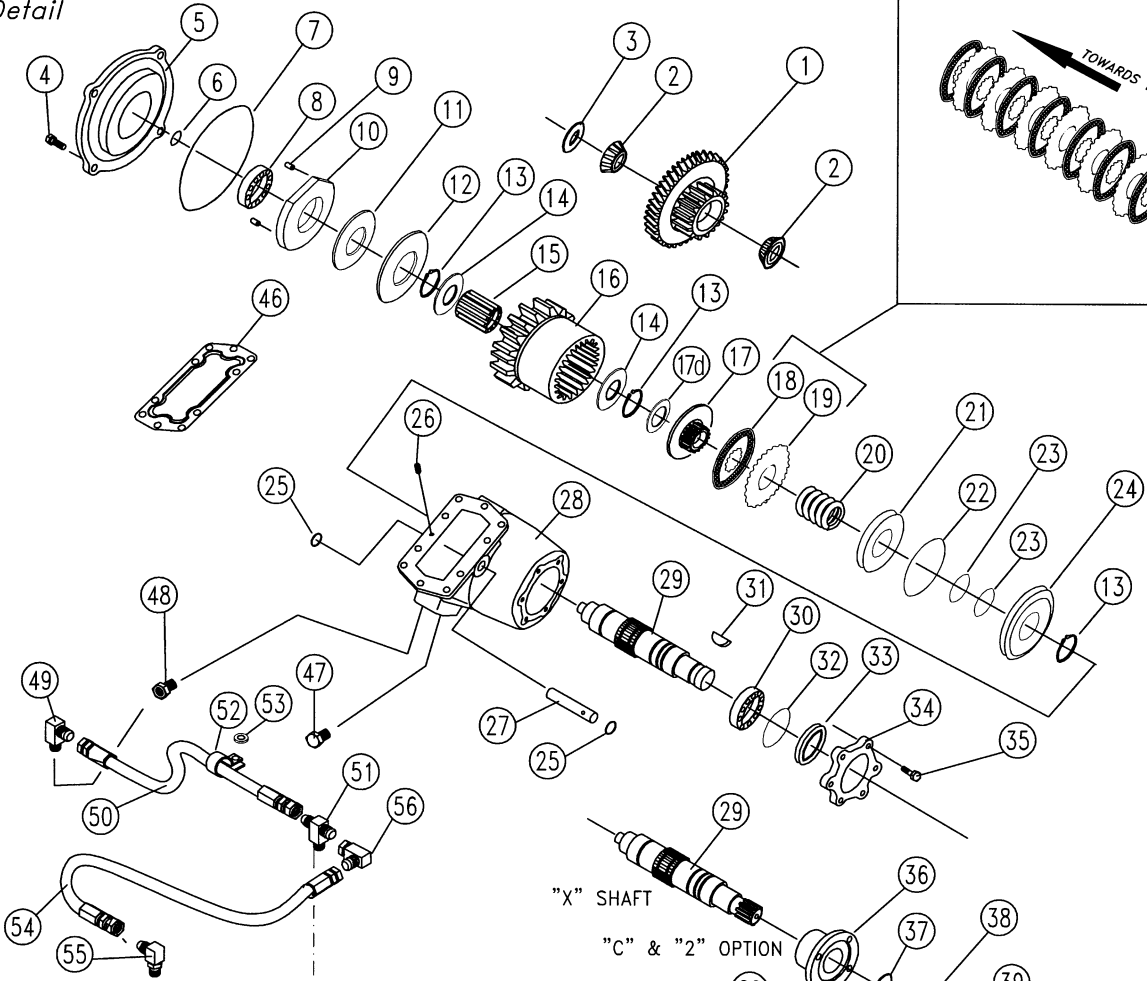
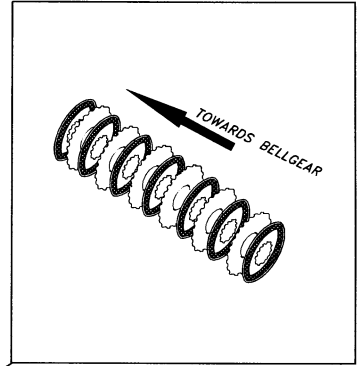
FOR THE ALLISON WORLD TRANSMISSION

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Muncie Power Products, Inc. General Offices and Distribution Center • P.O. Box 548 • Muncie, IN 47308-0548  
(765) 284-7721 • FAX (765) 284-6991 • E-mail [info@munciepower.com](mailto:info@munciepower.com) • Web site <http://www.munciepower.com>  
Drive Products, Inc., Toronto, Exclusive Agents for Canada

# CS10 & CS11 SERIES CLUTCH SHIFT PTO EXPLODED VIEW

See Cover  
Detail



"X" SHAFT

"C" & "2" OPTION

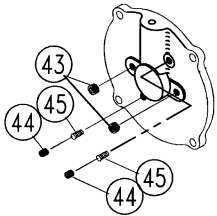
"D" OPTION

"Y" OPTION

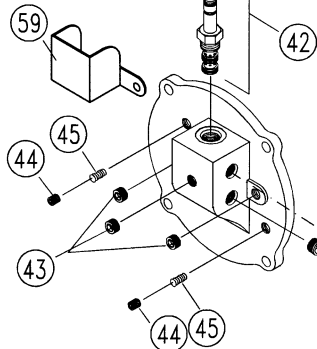
"E" OPTION

"I" OPTION

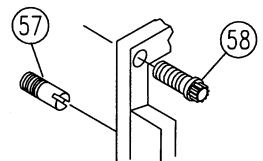
CS11 Cover Detail



CS10  
Cover  
Detail



STUD KIT



# PARTS LIST AND DESCRIPTION \*

ITEM	QTY	PART NUMBER	DESCRIPTION	ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	03T36214	Input Gear (05) (50T/27T)	34	1	15T36123	Bearing Cov., Open ("2", "B", "C", "X")
		03T36215	Input Gear (06) (50T/29T)			14T35767	Hyd Flange ("D", "P" Only)
		03T36216	Input Gear (07) (50T/31T)			14T35769	Hyd Flange ("E" Only)
		03T36217	Input Gear (08) (50T/34T)			14T36007	Hyd Flange ("Y" Only)
		03T36218	Input Gear (10) (50T/36T)			14T36834	Hyd Flange ("I" Only)
2	2	10T35776	Input Bearing			14T37474	Hyd Flange ("S" Only)
3	1	18T35781	Shim (.122/.125)	35	6	19T32740	Capscrew ("B", "C", "2")
		18T35782	Shim (.117/.120)	36	1	14T31499	Companion Flange ("C" Only)
		18T35783	Shim (.112/.115)			14T37498	Companion Flange ("2" Only)
4	4	19M38100	Capscrew	37	1	21T20092	Washer ("C", "2" Only)
5	1	15T36206	Bearing Cover, Closed (CS10)	38	1	21T20526	Lock Washer ("C", "2" Only, If Req.)
		15T37970	Bear. Cov. w/o Valve Prov. (CS11)	39	1	19T38266	Capscrew ("C", "2" Only)
6	1	12T36081	O-Ring	40	6	19T39257	Socket Capscrew "D" & "P" Hyd
7	1	12T36207	O-Ring			19T31577	Socket Capscrew "E" & "Y" Hyd
8	1	10T35994	Bearing			19T35386	Socket Capscrew "I" Hyd
9	2	26T36175	Roll Pin (CS10)	41	1	25T35724	Cap Plug "D" (Storage Only)
10	1	21T36170	Drag Brake Plate (CS10)			25T35936	Cap Plug "E", "I", "Y" (Storage Only)
11	1	21T36172	Bronze Brake Disc (CS10)			25T35725	Cap Plug "P" (Storage Only)
12	1	21T36171	Drag Brake Rotor (CS10)	42	1	35T36092	Solenoid (12 Volt)
13	3	24T36040	Snap Ring			35T36447	Solenoid (24 Volt)
14	2	10T35989	Thrust Race	43	4	25T21684	Pipe Plug
15	1	10T35991	Bearing	44	2	19T36174	Set Screw
16	1	02T36219	Bell Gear (05) (47T)	45	2	27T36173	Spring
		02T36220	Bell Gear (06) (45T)	46	1	13T35777	Gasket
		02T36221	Bell Gear (07) (43T)	47	1	25T35999	Plug
		02T36222	Bell Gear (08) (40T)	48	1	25T35784	Orifice
		02T36223	Bell Gear (10) (38T)	49	1	43T35867	Elbow
17	1	02T36113	Clutch Hub (Before 4/99)	50	1	45T35865	Hose
	1	49TA4136	Clutch Hub Assembly (4/99) (Includes: 17a, 17b, 17c) (See Pg 6)	51	1	43T36231	Tee
17a	1	49T37920	Clutch Hub (4/99)	52	1	49T36283	Hose Clamp
17b	1	49T37921	Clutch Flange (4/99)	53	1	21T36448	Washer
17c	1	24T37951	Snap Ring (4/99)			<b>43TK3881</b>	<b>Standard Hose Kit</b>
17d	1	10T37930	Thrust Washer (4/99) (Used w/49TA4136 Only)			<b>43TK3885</b>	<b>HD For R.S. Installation</b>
18	7	49T33564	Friction Disc	54	1	45T36274	Hose (Std 28")
19	11	49T33563	Spacer Disc (Before 4/99)			45T36273	Hose (HD R.S. 57")
	6	49T33563	Spacer Disc (4/99)	55	1	43M68014	Elbow
20	1	27T36112	Spring	56	1	43T36445	Elbow (use as needed)
21	1	49T36114	Piston			<b>20MK1001</b>	<b>Mounting Bolt Kit (Incl. 57, 58)</b>
22	1	12T36054	O-Ring	57	2	20T35779	Alignment Stud
23	2	12T36053	O-Ring	58	8	19T35778	12 Pt. Capscrew (30mm)
24	1	49T36115	Piston Cup	59	1	49T36493	Protector
25	2	12T35774	O-Ring	60	1	35T37928	Remote Mount Valve Ass'y (CS11) (See Page 8)
26	1	19T35785	Set Screw	N.S.	1	<b>48TK3900</b>	<b>Installation Kit (12v) Incl: Shift Kit, Gasket Pack, Stud Kit, Std. Hose Kit</b>
27	1	07T35780	Idler Shaft			<b>48TK3901</b>	<b>Installation Kit (24v) Incl: Shift Kit, Gasket Pack, Stud Kit, Std. Hose Kit</b>
28	1	01T36204	Housing (1 Arrangement)	N.S.	1	<b>CS10-GSK</b>	<b>Gasket Kit Incl: (1)6, (1)7, (1)22, (2)23, (2)25, (1)32, (1)33, (1)46</b>
		01T36202	Housing (3 Arrangement)	N.S.	1	<b>CS10-RBK</b>	<b>Rebuild Kit Incl: (2)2, (1)3, (1)6, (1)7, (1)8, (2)9, (1)11, (3)13, (2)14, (1)15, (7)18, (1)19, (1)22, (2)23, (2)25, (1)30, (1)32, (1)33, (2)45, (1)46</b>
<p><i>Output Shafts (OS) were changed 4/99 to accommodate the two-piece clutch hub (17). When replacing shaft in PTO prior to 4/99, clutch hub assembly (17) and washer (17d) must be added to required parts.</i></p>				N.S.	1	<b>48TK4051</b>	<b>CS11 Conversion Kit Includes: 43TK4036 Hose Kit (page 6), 35T37928 Control Valve 12VDC, 15TA4056 Cover Kit, and Solenoid Mounting Hardware.</b>
29	1	06T37932	OS "B" replaces 06T36039				
		06T37933	OS "C", "2", "X" replaces 06T36072				
		06T37934	OS "D", "S" replaces 06T36073				
		06T37935	OS "E", "Y" replaces 06T36074				
		06T37936	OS "I" replaces 06T36832				
		06T37937	OS "P" replaces 06T36799				
30	1	10T35775	Output Bearing				
31	1	26T01627	Woodruff Key				
32	1	12T35773	O Ring				
33	1	11T37795	Seal				

\* Date Code Is Located Under PTO Model Label.

# CS10 & CS11 DISASSEMBLY & REASSEMBLY

(REFERENCE EXPLODED VIEW ON PAGE 2)

## DISASSEMBLY PROCEDURE

1. Remove CS10 input gear, by removing the set screw in the pad and driving idler shaft from housing (26, 27).
2. Remove set screws (44) from bearing cover (5) which hold the drag brake springs (45). Position housing so that springs fall from housing.
3. Remove the four large socket capscrews (4) which hold bearing cover to PTO housing.
4. Position housing against a bench block and hit end of output shaft with a soft face hammer to remove entire output shaft assembly with bearing cover.
5. Remove the two pipe plugs (43) from bearing cover. This exposes ball bearing assembly within the cover.

6 Using a 1/4" punch and alternating between the two holes, drive bearing and shaft assembly from bearing cover.

7 Using a bearing puller remove rear bearing (8) by grabbing drag brake plate (10) and removing both pieces. The bronze brake disk (11) can be removed.

8 Insert four 1/4-20 capscrews into drag brake rotor (12) until they just touch back of bell gear. Using an "X" pattern screw capscrews in at 1/4 turn intervals until brake rotor is free of output shaft (29).

9. The piston and clutch pack may be serviced without removal of drag brake. Using snap ring pliers, remove snap ring (13) located on output shaft end while gently pushing on piston cup (24).

10. Pull piston cup (24) from the shaft and piston (21) will go with it.

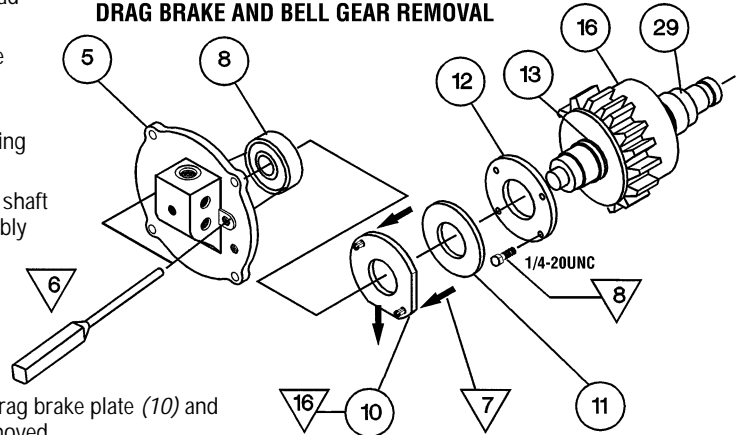
11. Tap piston cup on a wood surface to remove piston.

12. Remove spring (20). The clutch friction discs (18) and spacer disc (19) and inner clutch hub (17) can be removed by pointing shaft end down.

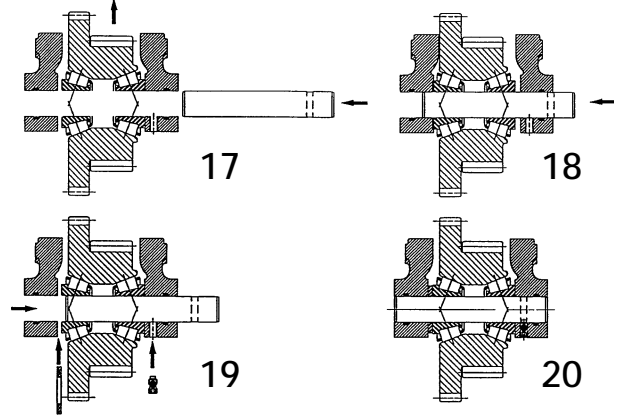
13. With drag brake assembly removed, the snap ring (13) on this end of bell gear can be removed with snap ring pliers. This allows bell gear to be removed towards closed end. The internal bearing (15) of bell gear can easily be removed.

▽ - DENOTES SPECIAL SERVICE PROCEDURES

### DRAG BRAKE AND BELL GEAR REMOVAL



### TAPER ROLLER BEARINGS



## REASSEMBLY PROCEDURE

14. The reassembly of the unit is made in reverse of the disassembly.

15. Be sure to lubricate o-rings and all bearings upon installation.

16 It is important to position drag brake plate so that input gear clears. This is the reason for the flat sides of the plate.

Torque capscrews to values shown or to following values:

5/16 capscrews - 18 ft. lb.

3/8 capscrews - 36 ft. lb.

1/4 set screw - 9 ft. lb.

17 Place input bearing into input gear and slide this group into housing to line up idler shaft.

18 Tap idler shaft into housing and through both bearing races.

19 Tap idler shaft in reverse direction so that it is flush with bearing in this assembly. Insert thickest shim that can be installed by hand in gap between bearing and housing. Rotate input gear to ensure it is not excessively tight or loose. Recommended bearing pre-load is .002" loose to .006" loose.

20 Tap idler shaft into position and install set screw.

## SOLENOID VALVE INSTALLATION (CS10 ONLY)

21 Separate coil from valve assembly. Insert valve cartridge into rear cover and torque to 20 ft. lb.

22. Slip coil over valve.

23 Place thread locking compound on post threads and install nut. Torque nut 4 to 5 ft. lb. max.

24 Place thread sealant on pipe plugs. Torque 10-16 ft. lb.

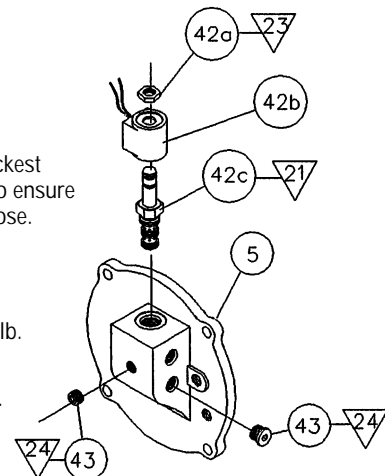
## DRAG BRAKE ADJUSTMENT (CS10 ONLY)

25. When installing rear cover be sure to align roll pins in drag brake plate with the holes in rear cover. Note: It is important that one of the flat edges of this plate is positioned towards input gear.

26. After cover has been attached to housing insert springs into holes.

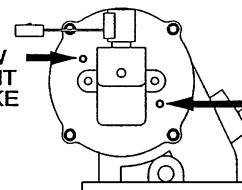
27. Insert set screw over spring and turn screw four (4) full turns.

28. Follow test and adjustment procedures in CS10 owners manual.



SET SCREW  
ADJUSTMENT  
DRAG BRAKE

SET SCREW  
ADJUSTMENT  
DRAG BRAKE



# CS10 & CS11 SERIES INSTALLATION KITS

CS10 ELEC/HYD SYSTEM – KIT NO. 48TK3882 (12V)

CS11 ELEC/HYD SYSTEM – KIT NO. 48TK4051 (12V)  
(USE WITH 48TK3882)

ITEM	QTY	PART NO.	DESCRIPTION
		30T36270	Switch Ass'y (Incl. 1, 2, 3, 4)
1	1	36MA1005	Switch Bracket
2	1	36M01006	Face Plate for Overspeed Light
		36T36271	Face Plate without light access
3	1	32MSR12V	Light Assembly (12 Volt)
4	1	30T35687	Rocker Switch (12 Volt)
6	1	33T36299	Fuse Assembly
7	1	30T37954	Pressure Switch
8	1	34M18250	Female Spade Connector
9	1	34M18009	Ring Terminal
10	2	34M18187	Female Spade Connector
11	1	34M18002	Butt Splice
12	1	34T35872	Wire Harness
13	6	37M18000	Wire
14	1	37T35674	Grommet
N.S.	1	36MK1007	Bolt Kit (Incl w/30T36270+30T36453)
N.S.	1	43M05522	Elbow

ITEM	QTY	PART NO.	DESCRIPTION
15	1	43T37503	1/8" NPT/JIC Fitting
16	2	43T35867	1/8" NPT/JIC Elbow
17	4	43T36274	Hose Assembly
18	1	43T36231	Straight Branch Tee
19	3	43M68014	7/16 - 20 Str. Thread Elbow
20	1	35T37928	Valve 12V D.C.
21*	1	15TA4056	Cover Assembly *Incl. Bearing (8) & O-Ring (6&7) as shown on pg. 2.
N.S.	2	19T36623	Capscrew
N.S.	2	22T35140	Nut
N.S.	2	21T37991	Lock Washer

For 24V Option Kit No. 48TK4052 (Use with 48TK3891) Substitute:

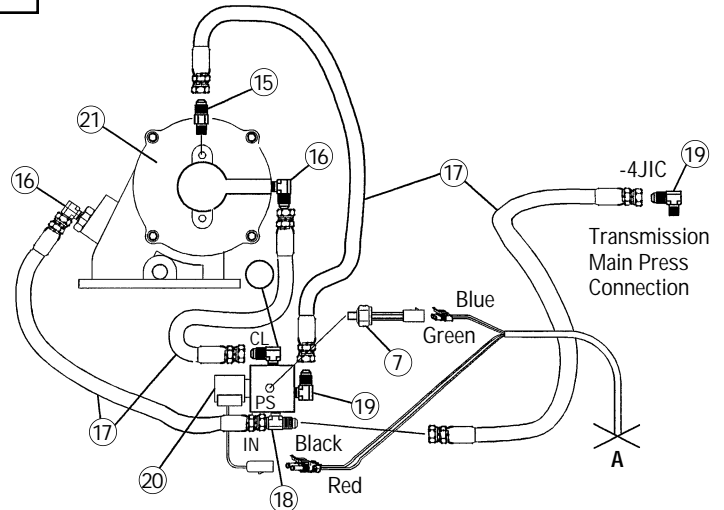
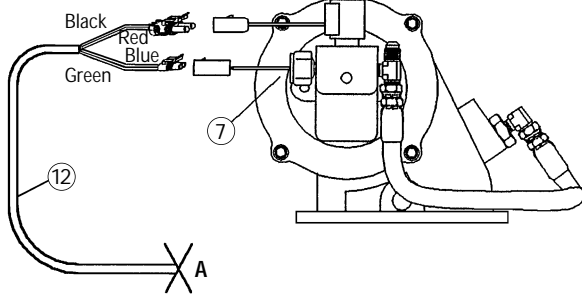
20	1	35T37967	Valve 24V D.C.
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For 24V Option Kit No. 48TK3891 Substitute:

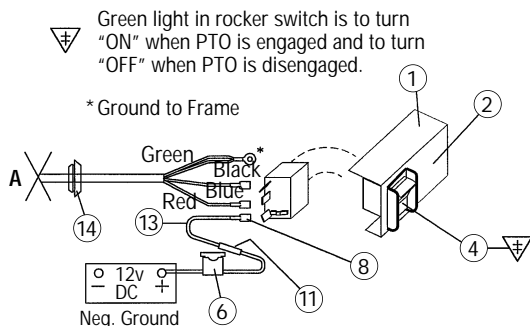
		30T36453	Switch Ass'y (Incl. 1 & 2 above and 3 & 4 below)
3	1	32MSR24V	Light Assembly (24 Volt)
4	1	30T35712	Rocker Switch (24 Volt)

## CS11 SERIES INSTALLATION KIT WITH REMOTE ACTIVATION SOLENOID 43TK4036 HOSE KIT (STANDARD)

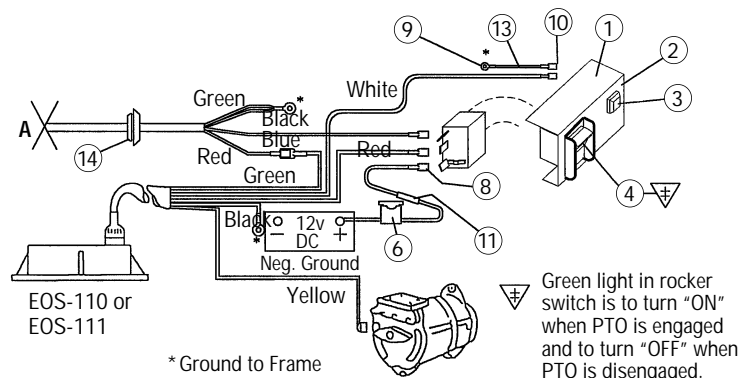
### CS10 SERIES INSTALLATION KIT WITH DIRECT ACTIVATION SOLENOID (NO HOSE KIT REQUIRED)



### CIRCUIT INSTALLATION WHEN USED WITHOUT OVERSPEED SWITCH



### CIRCUIT INSTALLATION WHEN USED WITH OVERSPEED SWITCH

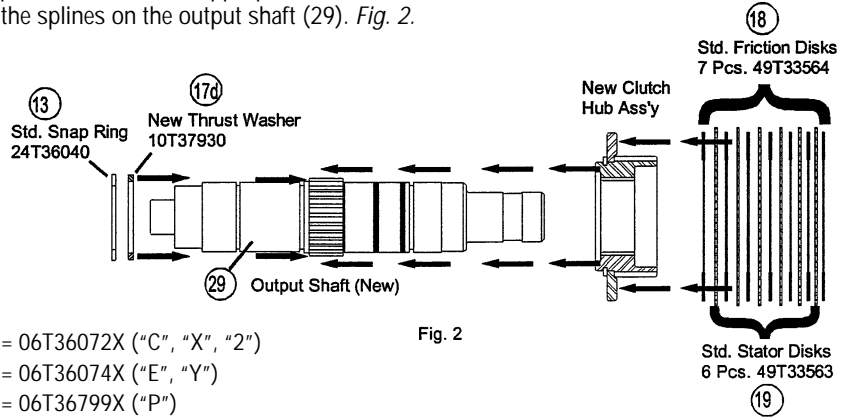
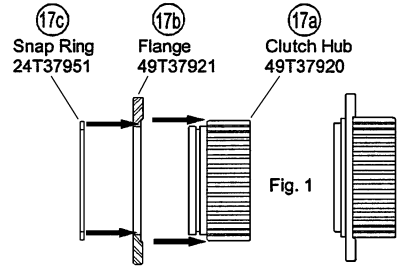


# CS10 CLUTCH HUB REPLACEMENT

Effective April 1999 the clutch hub supplied in the CS10 Series PTO has the two piece clutch hub as shown on this page. The two piece hub consists of a splined hub and a flange which is held together by a snap ring. Because of this design change the clutch pack stack up has changed as shown on page 2.

Begin by assembling the new Clutch Hub:

1. Place the flange (17b) on to the Clutch Hub (17a) so that the recessed area of the flange is against the splines. *Fig. 1.*
2. Using snap ring pliers install the Snap Ring (17c) on to the Clutch Hub (17a).
3. The New Clutch Hub requires a new output shaft. Select the appropriate shaft and install the Thrust Washer (17d) against the splines on the output shaft (29). *Fig. 2.*
4. Hold thrust washer in place with the Snap Ring (13).



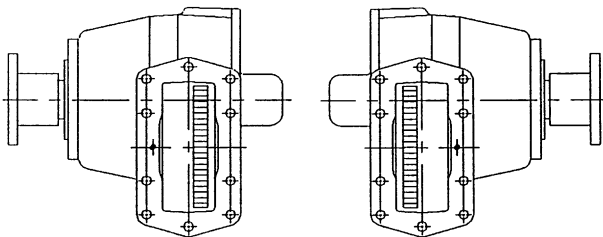
06T37932 = 06T36039X ("B")      06T37933 = 06T36072X ("C", "X", "2")  
 06T37934 = 06T36073X ("S", "D")      06T37935 = 06T36074X ("E", "Y")  
 06T37636 = 06T36832X ("I")      06T37937 = 06T36799X ("P")

Current Inventory that has been reworked will have an "X" marked on the shaft by the part number.

## MODEL NUMBER CONSTRUCTION

	<b>CS 10 — A10 05 — H 1 B X</b>	
<b>PTO Type</b>	CS — Clutch Shift	
<b>Mounting</b>	10 — 10 Bolt Mount 11 — 10 Bolt Mount with Remote Solenoid	
<b>Trans.</b>	CS Gear Data Allison 10.16P RH — A10	
<b>Speed Ratio</b>	05 — .57:1 06 — .64:1 07 — .72:1 08 — .85:1 10 — .95:1	
		<b>Special Feature</b> X — None (Pressure Lube Std. on all Units) B — Hose Kit (HD Trans. R.S.) D — Pulse Generator & EOS-111 U — Pulse Generator
		<b>Output Type</b> B — 1-1/4" Rd. 5/16 KW C — 1410 Companion Flange D — SAE "B" 2 & 4 Bolt E — SAE "C" 2 & 4 Bolt I — DIN 5462 P — SAE "BB" 2 & 4 Bolt S — SAE "B" 2 Bolt Y — SAE "C" 2 Bolt 2 — DIN Companion Flange
		<b>Assembly Arrangement</b> 1 3
		<b>Shifter Type</b> H — 12 Volt Electric/Hydraulic J — 24 Volt Electric/Hydraulic

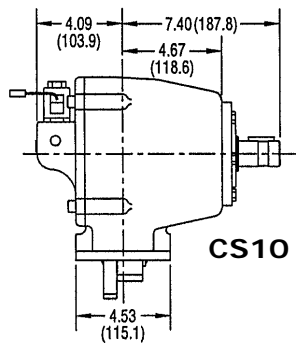
### PTO ASSEMBLY ARRANGEMENTS



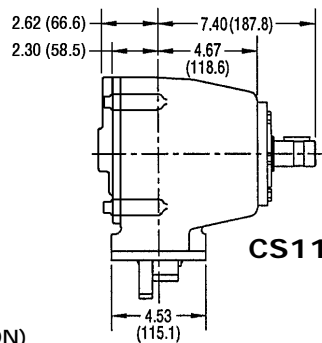
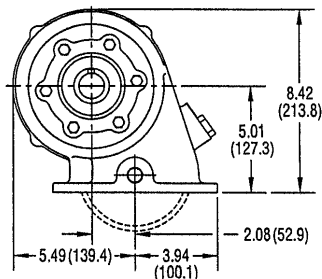
NO. 1 ASSEMBLY

NO. 3 ASSEMBLY

# MOUNTING DIMENSIONS IN INCHES (MM)

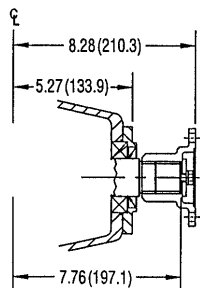


**CS10**

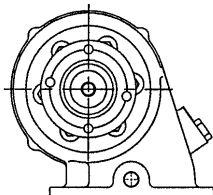


**CS11**

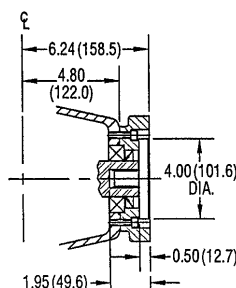
STD 1-1/4" RND KEYED SHAFT ("B" OPTION)



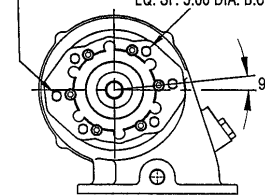
SPICER 1410 SERIES  
2-3/4 DIA. PILOT • 3-3/4 DIA. B.C.



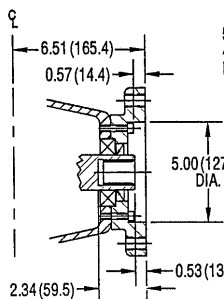
1-1/2"-10 SPLINE W/1410 SERIES FLANGE ("C" OPTION)



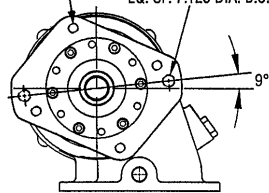
1/2-13 UNC-2B  
2 PLS.  
EQ. SP. 5.75 DIA. B.C.      1/2-13 UNC-2B  
4 PLS.  
EQ. SP. 5.00 DIA. B.C.



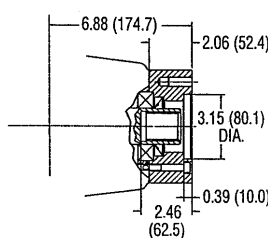
SAE "B" 2 & 4 BOLT 7/8"-13 SPLINE ("D" OPTION)



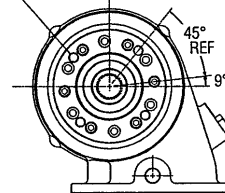
5/8-11 UNC-2B  
4 PLS.  
EQ. SP. 6.375 DIA. B.C.      5/8-11 UNC-2B  
2 PLS.  
EQ. SP. 7.125 DIA. B.C.



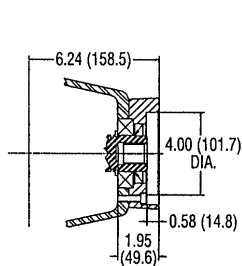
SAE "C" 2 & 4 BOLT 1-1/4"-14 SPLINE ("E" OPTION)



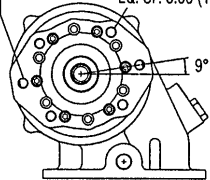
12mm x 1.75 4 PLS.  
EQ. SP. 113.15mm DIA. B.C.



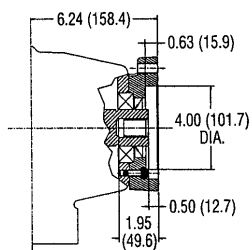
DIN 5462 36MM-8 SPLINE ("I" OPTION)



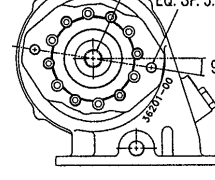
1/2-13 UNC-2B 2 PLS.  
EQ. SP. 5.75 (146.0) DIA. B.C.      1/2-13 UNC-2B 4 PLS.  
EQ. SP. 5.00 (127.0) DIA. B.C.



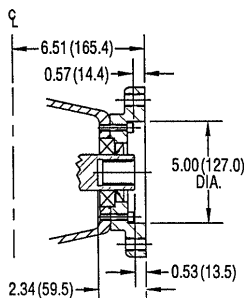
SAE "BB" 2 & 4 BOLT 1"-15 SPLINE ("P" OPTION)



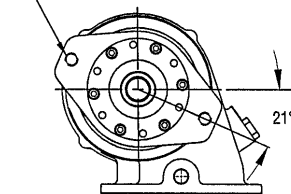
7/8"-13 SPLINE SHAFT  
1/2-13 UNC-2B 2 PLS.  
EQ. SP. 5.75 (146.0) DIA. B.C.



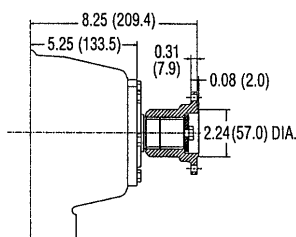
SAE "B" 2 BOLT 7/8"-13 SPLINE ("S" OPTION)



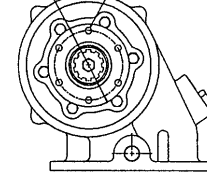
5/8-11 UNC-2B  
2 PLS.  
EQ. SP. 7.125 DIA. B.C.



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

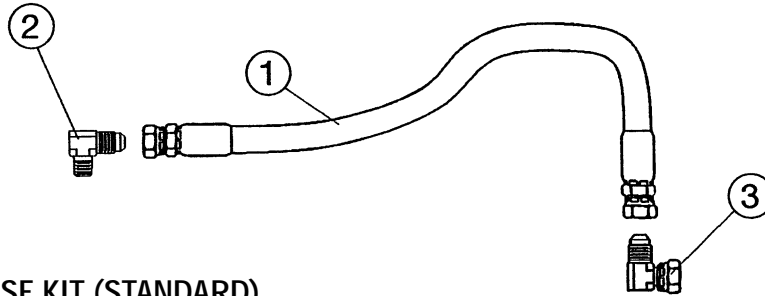


3.94 (100.0) DIA.      0.32 (8.0) DIA. 6 PLS.  
EQ. SP. 3.31 (84.0) B.C.



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

# INSTALLATION HOSE KITS



## 43TK3881 HOSE KIT (STANDARD) 43TK3885 HOSE KIT FOR TOP R.S. HD SERIES

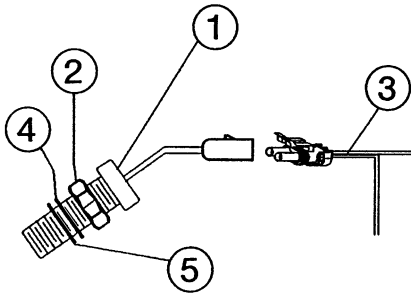
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	45T36274	Hose Ass'y Std. (28")
		45T36273	Hose Ass'y HD Top (57")
2	1	43M68014	Elbow (Transmission)
3	1	43T36445	Elbow (use as needed) (43TK3881 only)

## 43TK4036 HOSE KIT FOR CS11 SERIES PTO

ITEM	QTY	PART NUMBER	DESCRIPTION
1	4	45T36274	Hose Ass'y Std. (28")
2	3	43M68014	Elbow (Transmission)
3	1	43T36445	Elbow (use as needed)
N.S.	2	43T35867	Elbow
N.S.	1	43T36231	Tee Fitting

## SPEED SENSOR KIT

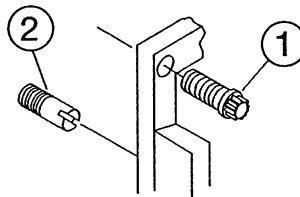
31TK3873  
SPECIAL OPTION "U"



ITEM	QTY	PART NO.	DESCR.
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

## BOLT KIT

20MK1001  
BOLT KIT FOR CS10/CS11

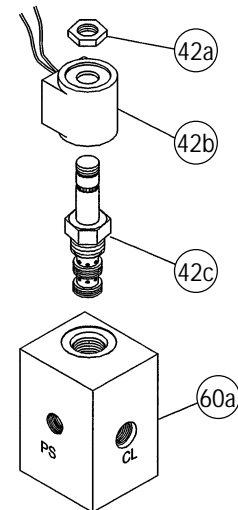


ITEM	QTY	PART NO.	DESCR.
1	8	19T35778	12 Point Capscrew - 30mm
2	2	20T35779	Alignment Stud

## SOLENOID

VALVE ASSEMBLY  
REPLACEMENT PARTS

35T37928 (12V)  
35T37967 (24V)



ITEM	QTY	PART NO.	DESCR.
42a	1	22T36498	Retain'g Nut
42b	1	37T36496	12v Coil
		37T36497	24v Coil
42c	1	35T37997	Valve
N.S.	1	12TK3902	Seal Kit
60a	1	N.A.	Manifold Blk (CS11)

The CS10 & CS11 include the mounting kit, special shim/gasket, high pressure hose hook-up kit, wiring harness, dash bracket kit, and installation instructions. The installation does not require any special tools. The PTO is available with a pulse generator pick-up for use with the Muncie digital tachometer 38MK2000 (request MP92-04) or use with the Muncie overspeed switch EOS-111 to control the engagement or overspeed protection of the PTO. Contact your Muncie Application Specialist for assistance with these options.



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