

QUICK REFERENCE CATALOG

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A Member of the Interpump Group

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QUICK REFERENCE CATALOG

This Muncie Power Products Quick Reference Catalog is designed to provide you and your customers with the most current PTO application information.

HOW TO USE THIS CATALOG

Successful power take-off selection requires correct transmission identification. Manufacturer's line tickets are not always reliable. Transmissions should be identified by the transmission manufacturer's tag located in various positions, depending on the manufacturer and the specific transmission. If unable to make positive identification, consult the nearest Muncie Power Products warehouse.

Once transmission is correctly identified, PTO selection is relatively simple.

The index lists all manufacturers of popular U.S. transmissions and many foreign transmissions now in use for mobile power applications.

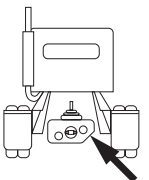

Each index page for gear driven PTOs provides the following information:

1. Transmission number, as well as all other transmission numbers with identical PTO drive data.
2. Number of forward speeds.
3. Number of teeth on PTO drive gear for I.D. purposes.
4. The correct application number.

LET. CODE	MAKE MODEL	NO. FWD. SP'DS	DIRECT DRIVE IN.	TEETH IN PTO DRIVER	PTO APPL. NO.
1	FORD TORQSHIFT 6R140 DIESEL (2011 & LATER DIESEL) F-250-F-550 ONLY.....6	2	4th	3	4
				52L	FORD-08

Each application page for gear driven PTOs provides the following information:

1. Transmission model numbers.
2. PTO opening size. SAE (Society of Automotive Engineers) or Metric (non-standard)
3. PTO drive gear data: No. of teeth and pitch, location within the opening, PLV (pitch line velocity) in FPM (feet per minute), PLMF (pitch line of gear to the mounting face of transmission), and gear RPM at 1,000 engine RPM.
4. Each available PTO.
5. Footnotes indicating any known obstructions or special requirements.
6. Output shaft direction of rotation (see page 37).
7. Output shaft speed as a percent to engine speed.
8. Any Adapter which would be required to mount the PTO.
9. Any Spacer(s) which are required to mount the PTO.
10. Required Stud Kit to mount the PTO.
11. The standard shift type included with PTO.
12. PTO Torque and HP rating @ 1,000 RPM at the PTO Output (Intermittent Duty).

FORD TRANSMISSION						LEFT SIDE ONLY (RIGHT SIDE TURN PAGE)					
	SUPER DUTY CHASSIS F-250-F-550 TORQSHIFT (6R140 6-SPEED) 2011-2016 (Diesel Only) 4x2 OR 4x4 AUTOMATIC Footnotes (1, 2, 5, 6, 7, 8)				1	2	3				
							FORD 6-BOLT OPENING PTO DRIVE GEAR DATA: 52T 12.09P 20° PA Spur LOCATION: Front PLMF: 3.439 PLV: 1,126 FPM RPM: 1,000				
6-BOLT TYPE	PTO MODEL NUMBER	FOOT NOTES	SHAFT ROTATION	ENGINE %		ADAPTER	SPACER	STUD KIT	SHIFT TYPE	INTERMITTENT RATING @ 1000 RPM of PTO	
4		5	6	7	8	9	10	11	12	TORQUE	HP

All information included in the Muncie Power QR PTO Quick Reference Catalog is complete and correct to the best of our knowledge, compiled from reliable and official sources with information available at the time of publication. However, we cannot assume any responsibility for errors.

This catalog and the telephone number of your nearest Muncie Power warehouse are all you need to order the correct PTO. A Muncie Power Products specialist will provide assistance upon your request.

Prior catalogs may contain old model numbers. You can order by these old numbers and Muncie Power will automatically cross-reference the numbers to new model numbers. Use the newest catalog when possible.

POWER TAKE-OFF WARRANTY

The Muncie power take-off is warranted to be free of defects in material or workmanship and to meet Muncie's standard written specifications at the time of sale. Muncie's obligation and liability under this warranty is expressly limited to repairing or replacing, at Muncie's option, within one year (two years on Allison World Transmission PTOs) after date of original installation any defective part or parts or any product not meeting the specifications.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. MUNCIE MAKES NO WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR ANY PARTICULAR PURPOSE. MUNCIE'S OBLIGATION UNDER THIS WARRANTY SHALL NOT INCLUDE ANY TRANSPORTATION CHARGES OR COSTS OF INSTALLATION OR ANY LIABILITY FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OR DELAY. THE REMEDIES SET FORTH HEREIN ARE EXCLUSIVE, AND MUNCIE'S LIABILITY WITH RESPECT TO ANY CONTRACT OR SALE OR ANYTHING DONE IN CONNECTION THEREWITH, WHETHER IN CONTRACT, IN TORT, UNDER ANY WARRANTY, OR OTHERWISE, SHALL NOT, EXCEPT AS EXPRESSLY PROVIDED HEREIN, EXCEED THE PRICE OF THE PRODUCT OR PART ON WHICH SUCH LIABILITY IS BASED.

If requested by Muncie, products or parts for which a warranty claim is made are to be returned, transportation prepaid, to a Muncie Service Center. Any installation or use not in accordance with catalog or package instructions, other improper use, operation beyond capacity, substitution of parts not approved by Muncie, use with equipment other than the equipment on which the power take-off is first installed, or alteration or repair made to the power take-off other than at a Muncie Service Center shall void this warranty. No employee or representative of Muncie is authorized to change this warranty in any way or to grant any other warranty.

GENERAL AND APPLICABLE INFORMATION

INTERMITTENT SERVICE

"Intermittent Service" as used in this catalog refers to an on/off operation under load. If maximum horsepower (HP) or torque (lb.ft.) are being used for extended periods of time (5 minutes or more every 15 minutes), then it must be considered as "Continuous Service" and the horsepower rating and service life expectation must be reduced. Applications with operations approaching both maximum HP and maximum torque is not recommended and PTO life will be limited. See pages 6-19 for PTO rating charts.

CONTINUOUS SERVICE WARNING

Applications with PTO output shaft speeds above 2,000 RPM regardless of duration are to be considered continuous duty applications. PTOs used for continuous service must be considered to have reduced horsepower capacity. In most cases, the capability is reduced by 30% of the stated rating. See page 32 for PTO rating chart.

Example: 100 lb.ft. minus 30% = 70 lb.ft., or
50 HP minus 30% = 35 HP

The RL Series PTOs are not approved for continuous duty applications.

If you have any questions regarding your PTO application, consult a Muncie Power application specialist.

FIRE PUMP APPLICATIONS

Fire pump applications are continuous duty and require derating of PTO applications by a factor of 20%.

PNEUMATIC BLOWER/VACUUM APPLICATIONS

High inertia devices like pneumatic blowers, large air compressors, and vacuum pumps are severe PTO applications and great care must be taken when specifying PTOs for these applications. High speed blower/vacuum applications can be approved at speeds higher than the 2,500 RPM limit where the load ratings are low. Consult your application's specialist for assistance with these specific applications.

PTO intermittent torque ratings shown on the application pages apply to start-up torque requirements for high inertia applications using proper engagement procedures. The derated,

continuous duty rating is to be applied to the application's steady state torque requirement. These requirements can be obtained from most blower manufacturers. Incorrect start-up procedures will cause PTO, driveshaft, or component failures and are not covered by manufacturer warranties. **Clutch shift type PTOs are not recommended or approved for high inertia applications.**

SEVERE DUTY

Severe duty or high service applications like blower or vacuum drives, but not limited to these applications, have varying life expectancies which can't be calculated by torque ratings alone. Other factors involved include transmission lubrication, cleanliness, heat extraction, engine characteristics, and external environmental conditions. Service intervals for transmission and lubrication cleanliness need to be reduced from the normal intervals specified in the vehicle operator's manuals. The interval should be determined by inspection and based on your maintenance records. PTO failures due to particulate contamination are not covered under PTO warranties. Contact Muncie Power Products, Inc. for application assistance.

PTO OUTPUT SHAFTS

PTO output shafts subjected to high cycles can have improved product life by using the largest PTO output shaft available. This includes remote drive type shafts and direct mount pump shafts.

FRETTING CORROSION

Fretting causes rapid spline wear of the PTO and hydraulic pump shafts. The wear is evident where two metal surfaces are in contact with each other and micro-movement of the two surfaces against each other wears the surfaces and typically leaves brownish residue when the surfaces are left dry. Spline failure from fretting has increased with the advent of electronically controlled diesel engines. Based upon our findings and industry reports, it is evident that failures due to fretting corrosion are not the responsibility of Muncie Power Products, Inc. and will not be covered under our stated warranty policy. Refer to the **PTO Installation and Operator's Manual** for recommended maintenance procedures for PTO output shafts.

TRANSMISSION PTO DRIVE GEAR

The gear in domestic built transmissions which drives the PTO is typically ½" to the front or ½" to the rear of the vertical centerline of the PTO opening. Foreign transmissions do not always follow this SAE and ISO standard. Reference to the PTO drive gear location is made at the top right of each application page as "Front" or "Rear". This gear location determines the assembly arrangement of the PTO unit. Gear data is provided for the visual verification of the drive gear application.

ASSEMBLY ARRANGEMENT

Standard PTO arrangements shown in this catalog will typically provide PTO output shafts to the rear, below centerline of the opening. Check footnotes for exceptions to this standard. Available arrangements for each of the Muncie Power PTOs are shown on pages 6–24 of this section.

MOUNTING DEPTH

For standard mounting depth, the pitch line of the PTO drive gear in the transmission will be 1.085 inch from the face of the PTO mounting pad. Normal PTO design requires using one thick and one thin PTO mounting gasket. Tolerance differences in transmissions may still require additional gaskets for correct gear mesh to provide quiet operation and prevent transmission damage. (See BACKLASH)

BACKLASH

Backlash is defined as the space between meshing surfaces of the gears in gearbox devices. Space is needed for expansion caused by heat and viscosity changes in lubricants.

Refer to the **PTO Installation and Operator's Manual** for the correct backlash adjustment procedure which is to be performed on every PTO installation. Use of a dial indicator is recommended. The recommended backlash between the transmission and PTO is from .006 to .012 inch. Too many gaskets will create too much backlash and may cause the PTO to rattle when running at no load. To correct, remove one or more gaskets. Too few gaskets may cause PTO to whine and cause difficult shifting of the PTO and transmission. To correct, add one or more gaskets. PTOs will not always make noises when improperly spaced.

Correct backlash must also be established when gear adapters are used (See ADAPTERS). Transmissions using automatic transmission fluid may have higher noise levels caused by the thinner consistency of the lubricant and the large PTO drive gear in the transmission.

ADAPTERS

Adapters are normally used to reverse rotation of the PTO output and to clear mounting obstructions (See pages 33–35 of this section). Standard adapters will move the PTO outward from the transmission approximately three inches. Where adapters are shown on an application sheet with a PTO listing, the adapter is required because of a design problem and must be used as shown. Adapters often reduce horsepower ratings and service life. Adjustments to the application rating are noted in the footnotes found on the adapter gear page 35.

To establish the correct backlash when using a gear adapter, first bench mount the PTO to the adapter. Set aside the gasket set that yielded correct backlash. Then mount the adapter to the transmission, establishing correct backlash there.

PTO SPEEDS

PTO speeds are shown on each application page as a percentage of engine speed. For example, if a PTO is listed as 65%, and the truck engine is running at 1,000 RPM, the PTO shaft will be rotating at 650 RPM. If the truck engine is accelerated to 1,800 RPM, the same PTO will increase in speed to 1,170 RPM (.65 × 1,800 = 1,170).

This catalog typically shows only PTO percentages between 40% to 150% on single speed PTOs and 40% to 200% on reversible PTOs. If your application requires a percentage other than what is shown, please contact Muncie Power for assistance.

Note: The maximum advertised speed for the Muncie Power Series PTO output shaft is 2,500 RPM.

ROTATION

The rotation shown for each PTO on the application sheets specifies "crnk" or "opp", indicating rotation of the PTO output shaft in relation to the rotation of the engine crankshaft. All engine crankshafts rotate in the same direction; CW when viewed from the front of the engine. See page 37 for a more detailed description.

INSTALLATION INTERFERENCE

Muncie Power Products, Inc. provides power take-off products based upon data provided by transmission manufacturers. We also address known issues related to chassis applications. Due to variations of vehicle manufacturers and the location of components mounted in proximity of the PTO and driven components, it is not possible to list all interference issues with regards to PTO installations within this catalog. Therefore, the installers of our products should pay particular attention to potential interference points due to the motion of the engine/transmission/PTO assembly in relation to fixed components on the chassis. Care should also be taken when mounting products near heat sources such as exhaust systems. Adequate insulation should be installed to prevent damage. It is the responsibility of the installer or up-fitter to examine possible interference issues and resolve them prior to releasing any installation. Contact Muncie Power's customer service team when issues are found and we will work with you to resolve them.

INSTALLATION

Limited information is included in this catalog regarding installation of the PTO. Should more information be desired, request a copy of the **PTO Installation and Operator's Manual** before you order the PTO. Installation manuals are supplied with every PTO.

DIRECT MOUNT HYD. PUMP INSTALLATIONS

It is recommended that direct mounted hydraulic pumps be supported to the transmission with a 4-point support bracket. The bracket is to be attached at the transmission with two attachment bolts and at the pump with two attachment bolts in order to prevent movement of the pump in all directions. Guidelines are found in the **PTO Installation and Operator's Manual**. Pump weight, size, and type are variables which contribute to the requirement for the use of a bracket, but system cycles, terrain, and other external influences can be factors in determining the requirements for proper installation. Hydraulic pumps with a combined weight of 40 lbs. (pump, fittings, hose, oil, etc.) must be supported. Refer to the **PTO Installation and Operator's Manual** for further recommendations.

WHAT YOU NEED TO KNOW TO ORDER A PTO

- 1. TRANSMISSION MAKE AND MODEL NUMBER.
MUST KNOW ABSOLUTELY BEFORE PROCEEDING.**
- 2. FIND THE APPLICATION PAGE USING THE INDEX SECTION
OF THIS CATALOG.**
- 3. EXAMINE THE VEHICLE AND TRANSMISSION FOR OBSTRUCTIONS AND
INTERFERENCE OF PTO AND ACCESSORIES.**
- 4. ON WHICH SIDE WILL THE PTO BE MOUNTED; DRIVER (LEFT), CURB
(RIGHT), OR BOTTOM?**
- 5. WHAT IS BEING DRIVEN BY THE PTO: HOIST PUMP, BLOWER, WINCH,
REFUSE SYSTEM?**
- 6. WHAT PTO % OR WHAT PTO SHAFT RPM IS REQUESTED?**
- 7. DOES THE SHAFT ROTATION MAKE ANY DIFFERENCE?**
- 8. WILL A PUMP BE DIRECTLY MOUNTED TO THE PTO OR A DRIVESHAFT?
REFER TO PAGES 25–26 FOR POSSIBLE PTO OPTIONS & DIMENSIONS.**
- 9. WHAT IS THE SHIFT METHOD: CABLE, AIR, ELECTRIC/AIR, LEVER, OR
CLUTCH SHIFT?**
- 10. PLACE ORDER.**

NOTE: IF REPLACING AN EXISTING PTO, FOLLOW THESE TIPS

- GET THE TAG NUMBER AND/OR THE INPUT GEAR NUMBER FROM THE PTO.
- DETERMINE IF PTO HAS FAILED FROM:
 - OLD AGE (INTERCHANGE TO NEW PART #)
 - ABUSE (REVIEW APPLICATION)
 - BAD APPLICATION (REVIEW APPLICATION)
- ALSO DETERMINE IF OPERATION HAS BEEN SATISFACTORY
 - CORRECT SPEED
 - CORRECT ROTATION
 - CORRECT FIT
- IF CUSTOMER SAYS THAT OPERATION HAD BEEN LESS THAN SATISFACTORY, NOW IS THE TIME TO MAKE CORRECTIONS.

TG SERIES MECHANICAL SHIFT

MODEL NUMBER CONSTRUCTION

TG-6S-U60-04 C-1-B-X

PTO Series

TG — Triple Gear

Mounting Options

6S — SAE 6-Bolt Std. Mtg.
 6D — SAE 6-Bolt Non-Std. Mtg. (N81 & W80)
 6N — SAE 6-Bolt Non-Std. Mtg. (Isuzu NPR, Spicer S71, S73, & M80)
 8S — SAE 8-Bolt Std. Mtg.
 8D — SAE 8-Bolt Non-Std. Mtg.
 8F — SAE 8-Bolt Non-Std. — Eaton Endurant (E70 & E80)
 8M — SAE 8-Bolt Extra Deep Mtg.
 6A — SAE 6-Bolt Std. Mtg. w/29TK3863 (for N56)
 6B — SAE 6-Bolt Std. Mtg. — Metric Studs
 6C — SAE 6-Bolt Non-Std. Mtg. — Metric Studs
 6F — SAE 6-Bolt Std. w/Dowel Pins — Metric Studs (F84)
 6K — SAE 6-Bolt Non-Std. Mtg. — Less Stud Kit
 6L — SAE 6-Bolt Std. Mtg. — Less Stud Kit
 8B — SAE 8-Bolt Std. Mtg. — Metric Studs
 8C — SAE 8-Bolt Non-Std. Mtg. — Metric Studs
 8K — SAE 8-Bolt Non-Std. Mtg. — Less Stud Kit
 8L — SAE 8-Bolt Std. Mtg. — Less Stud Kit

Transmission Input Gear Options

I84 — Aisin	8.46P 20° PA Spur	T81 — Tremec	8.1P 20° PA 29.47° RH
A69 — Allison	6.86P 20° PA Spur	T82 — Tremec	8.19P 20° PA 29.9° LH
C57 — Clark	5.7P 25° PA 38.7° LH	S68 — Universal	6P or 6/8P 20° PA Spur Deep Reach
C60 — Clark	6.100P 25° PA 18° 40' 48" RH	U57 — Universal	5 or 5/7P 20° Spur
C61 — Clark	6.100P 25° PA 32° 16' 48" LH	U60 — Universal	6P 20° Spur, Full Addendum
C70 — Clark	7P 25° PA 30° 46' 48" LH	U62 — Universal	6P 25° PA Spur
C76 — Clark	7.6168P 18° 29' 22" 23° 12' 57" LH	U68 — Universal	6P or 6/8P 20° PA Spur Full Dedendum
D94 — Dodge	9.41P 18.33° PA 26.47° RH	X68 — Universal	6P or 6/8P 20° PA Spur, Full Dedendum
E70 — Eaton	7.055P 20° PA Spur	W80 — Warner	8.0829P 20° PA 30° LH
E80 — Eaton	8.048P 20° PA 28.98 RH	Z10 — Zed F	10.3673P 20° LH
F10 — Fuller	10.1P 20° PA Spur	Z92 — Zed F	9.2364P 20° PA 36° LH
F11 — Fuller	10.1P 21.5° PA Spur	Z98 — Zed F	9.96078P 20° RH
F61 — Fuller	6.1P 20.5° PA 29° LH	Z99 — Zed F	9.96078P 20° RH
F62 — Fuller	6.27P 22.5° PA Spur	Kit — None	Less Input Gear
F63 — Fuller	6.35P 20° PA 22° LH		
F65 — Fuller	6.5P 20° PA 23° LH		
F66 — Fuller	6.65P 20° PA 21.5° LH		
F70 — Fuller	7P 23° PA 26° LH		
F75 — Fuller	7.5P 22° PA 15° LH		
F84 — Fuller	8.38P 18° PA 33.1° LH		
F89 — Fuller	8.97P 17° PA 30.25° LH		
G73 — GMC	7.3449P 20° PA 24° LH		
M65 — Mack	6.48P 17° 30' PA Spur		
M80 — Mercedes	8.04P 17.5° PA 26.97° LH		
M83 — Mercedes	8.38P 17.5° PA 24.97° LH		
N81 — New Process	8.116P 20° PA 33° 30' LH		
N10 — New Venture	10.4019P 20° PA 34.5° LH		
N79 — New Venture	7.94P 22.5° PA 30° LH		
N80 — New Venture	7.99P 22.19° PA 29° LH		
N56 — Nissan	5.64P 20° PA Spur		
S60 — Tremec/Spicer	6P 17.5° PA 26° 10' 37" LH		
S61 — Tremec/Spicer	6P 17.5° PA 22.25° LH		
S63 — Tremec/Spicer	6.1P 20° PA 23.15° LH		
S70 — Tremec/Spicer	7P 17.5° PA 28° 4' 23" LH		
S71 — Tremec/Spicer	7P 17.5° PA 18° LH		
S73 — Tremec/Spicer	7P 22.5° PA 19° RH		

Special Feature Options

X — None
 A — Inverted Air Cover
 E — U60 w/Standard Gasket Pack
 F — Clearance Idler Cap
 G — Greaseable Shaft (K, P, & V Only)
 H — High Torque (12, 13, 15, & 18 Only) Std.
 I — Dual Terminal Indicator
 J — High Torque-Pressure Lube (12, 13, 15, & 18 Only)
 M — Clearance Idler Cap
 P — Pressure Lube (Optional)
 Q — Clearance Idler Cap-High Torque
 V — U60 w/Std. Gasket Pack, Milled Idler Cap
 7 — Remote Pressure Switch

Output Options

B — 1 1/4" Round Keyed Shaft
 C — 1410 Companion Flange
 F — SAE "A" 2-Bolt (Special)
 G — Special
 I — DIN 5462
 K — SAE "B" 7/8" -13T, SAE "B" 2- & 4-Bolt
 L — SAE "B" 2- or 4-Bolt Low Box Mount
 M — SAE "A" 5/8" -9T, SAE "A" 2- & 6-Bolt
 P — SAE "BB" 1" -15T, SAE "BB" 2- & 4-Bolt
 Q — SAE "B" 7/8" -13T, SAE "A" 2-Bolt
 R — SAE "A" 5/8" -9T, SAE "A" 2-Bolt
 S — SAE "A" 7/8" -13T, SAE "B" 2-Bolt
 T — 3/4" -11T, SAE "A" 2-Bolt
 X — 1 1/4" -20T Spline for Companion Flange
 Z — SAE "C" 1 1/4" -14T, SAE "B" 2- & 4-Bolt
 2 — DIN 100 Companion Flange

Assembly Arrangements

1 — Right Side Shaft Low
 2 — Right Side Shaft Low, Gear to Rear
 3 — Left Side Shaft Low
 4 — Left Side Shaft Low, Gear to Rear

Shift Options

A — 12 V Manual Air	P — Manual Air (Less Installation Kit)
C — Cable Shift	S — Lectra Shift
E — 12 V Electric/Air	T — E-Hydra
F — 24 V Electric/Air	Z — Cable (A69)
H — 12 V Hydraulic Shift	4 — 12 V Manual Air (A69)
J — 24 V Hydraulic Shift	5 — 12 V Electric/Air (A69)
K — 24 V Manual Air	6 — Lectra Shift (A69)
M — Constant Mesh (U6004)	9 — 12 V Hydraulic Shift (A69 Only)
N — Special Electric/Air (N56)*	

Speed Ratios

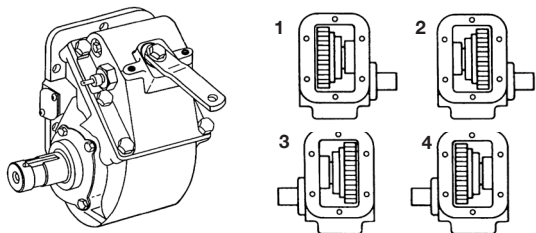
04 — .361:1	09 — .923:1
05 — .470:1	12 — 1.170:1
06 — .613:1	13 — 1.333:1
07 — .724:1	15 — 1.500:1
08 — .885:1	18 — 1.720:1

Note:

* Requires Special Kit

ASSEMBLY ARRANGEMENTS

SAE Recommended Practice J772 Envelope Type II



Approximate Weights: 22 lbs. (10.0 Kg.) 6-Bolt; 25 lbs. (11.34 Kg.) 8-Bolt

TORQUE AND HORSEPOWER RATINGS

Speed Ratio	Intermittent HP @ 1,000 RPM (kW)	Intermittent Torque lbs.ft. (Nm)	Continuous Torque lbs.ft. (Nm)
04	54 (40)	285 (386)	200 (270)
05	51 (38)	270 (366)	189 (256)
06	47 (35)	245 (332)	172 (232)
07	44 (33)	230 (312)	161 (218)
08	44 (33)	230 (312)	161 (218)
09	39 (29)	205 (278)	144 (195)
12H	40 (30)	210 (284)	147 (199)
13H	40 (30)	210 (284)	147 (199)
15H	37 (28)	195 (264)	137 (185)
18H	33 (25)	175 (237)	123 (166)

SH SERIES MECHANICAL SHIFT

MODEL NUMBER CONSTRUCTION

SH-8S-U68-12 A-1-B-X

PTO Series

SH — SH Series

Mounting Options

6S — SAE 6-Bolt Std. Mount
 6B — SAE 6-Bolt Std. — Metric
 6C — SAE 6-Bolt Deep — Metric
 6D — SAE 6-Bolt Deep Mount
 6F — SAE 6-Bolt Non-Std Mtg.
 w/Dowel Pins — Metric Studs (F84)
 6K — SAE 6-Bolt Deep — Less Stud Kit
 6L — SAE 6-Bolt Std. — Less Stud Kit
 6N — SAE 6-Bolt Non-Std. Mtg. — Jatco
 8S — SAE 8-Bolt Std. Mount
 8B — SAE 8-Bolt Std. — Metric
 8C — SAE 8-Bolt Deep — Metric
 8D — SAE 8-Bolt Deep Mount
 8F — SAE 8-Bolt Special — E80
 8K — SAE 8-Bolt Deep — Less Stud Kit
 8L — SAE 8-Bolt Std. — Less Stud Kit

Transmission Input Gear Options

E80 — Eaton/PACCAR 8.05P 20°PA 28.9RH
 F10 — Fuller 10.1P 20°PA Spur
 F11 — Fuller 10.1P 21.5°PA Spur
 F61 — Fuller 6.1P 20.5° PA 29°LH
 F63 — Fuller 6.35P 20° PA 22° LH
 F66 — Fuller 6.65P 20° PA 21.5° LH
 F70 — Fuller 7.0P 23°PA 26° LH
 F84 — Fuller 8.38P 18°PA 33.1° LH
 F85 — Fuller 8.55P 21°PA Spur
 M65 — Mack 6.48P 17.5°PA Spur
 S60 — Spicer 6P 17.5°PA 26.17° LH
 S70 — Spicer 7P 17.5°PA 26.07° LH
 S71 — Spicer 7P 17.5° PA 18°LH
 S73 — Spicer 7P 22.5° PA 19°LH
 S68 — Universal 6P or 6/8P 20°PA Spur
 U60 — Universal 6P 20°PA Spur
 U68 — Universal 6P or 6/8P 20°PA Spur

Special Feature Options

X — None
 P — Pressure Lube
 R — Pulse Generator/No Pressure Lube
 S — Pulse Generator/Pressure Lube

Output Options

B — 1¼" Round Keyed Shaft
 C — 1410 Companion Flange
 E — SAE "C" 1¼" -14T, SAE "C" 2- & 4-Bolt
 I — DIN 5462
 K — SAE "B" ¾" -13T, SAE "B" 2- & 4-Bolt
 P — SAE "BB" 1" -15T, SAE "B" 2- & 4-Bolt
 Q — SAE "B" ¾" -13T, SAE "A" 2-Bolt
 S — SAE "B" ¾" -13T, SAE "B" 2-Bolt
 T — SAE ¾" -11T, SAE "A" 2-Bolt
 Z — SAE "C" 1¼" -14T, SAE "B" 2- & 4-Bolt
 2 — DIN 100 Companion Flange

Assembly Arrangements

1 — Right Side Shaft Low
 3 — Left Side Shaft Low

Shift Options

A — Manual Air
 E — 12 V Electric/Air
 F — 24 V Electric/Air
 K — 24 V Manual/Air
 M — Constant Mesh
 P — Manual Air (Less Installation Kit)

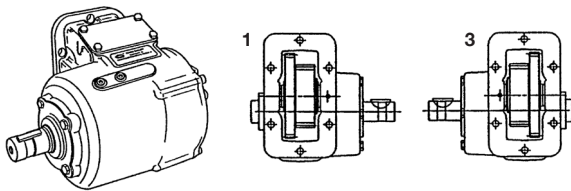
Speed Ratios

05 — .47:1
 07 — .70:1
 09 — .87:1, (8-Bolt Only)
 12 — 1.15:1
 13 — 1.33:1

ASSEMBLY ARRANGEMENTS

SAE Recommended Practice J772 Envelope Type

IV



Approximate Weights: 35 lbs. (15.9 Kg.) 6-Bolt; 37 lbs. (16.78 Kg.) 8-Bolt

TORQUE AND HORSEPOWER RATINGS

Speed Ratio	Intermittent HP @ 1,000 RPM (kW)	Intermittent Torque lbs.ft. (Nm)	Continuous Torque lbs.ft. (Nm)
05	76 (57)	400 (542)	280 (379)
07	76 (57)	400 (542)	280 (379)
09	71 (53)	375 (508)	263 (356)
12	62 (46)	325 (441)	228 (309)
13	62 (46)	325 (441)	228 (309)

CS6/CS8 SERIES CLUTCH SHIFT

MODEL NUMBER CONSTRUCTION

CS 6S-M65 07-E 1 B X

PTO Series

- CS — Clutch Shift (Standard Drag Brake)
- CB — Clutch Shift (Optional Shaft Brake)

Mounting Options

- 6B — SAE 6-Bolt Std. Mtg. — Metric Studs
- 6C — SAE 6-Bolt Non-Std. Mtg. — Metric Studs
- 6D — SAE 6-Bolt Non-Std. Mtg.
- 6F — SAE 6-Bolt Eaton Mtg. w/Dowel Pins — Metric Studs
- 6G — SAE 6-Bolt Clearance Cover/No Drag Brake
- 6K — SAE 6-Bolt Non-Std. Mtg — Less Stud Kit
- 6L — SAE 6-Bolt Std. Mtg. — Less Stud Kit
- 6N — SAE 6-Bolt Non-Std. Mtg. Deep
- 6S — SAE 6-Bolt Std. Mtg.
- 8C — SAE 8-Bolt Non-Std. Mtg. — Metric Studs
- 8D — SAE 8-Bolt Non-Std. Mtg.
- 8G — SAE 8-Bolt Clearance Cover/No Drag Brake
- 8K — SAE 8-Bolt Non-Std. Mtg. — Less Stud Kit
- 8L — SAE 8-Bolt Std. Mtg. — Less Stud Kit
- 8S — SAE 8-Bolt Std. Mtg.

Transmission Input Gear Options

- I84 — Aisin 8.46P 20° PA Spur
- A67 — Allison 6.86P 20° PA Spur
- C61 — Clark/Fuller 6.1P 25° PA 32° 16'48" LH
- C70 — Clark/Fuller 7P 25° PA 30° 46'48" LH
- F10 — Fuller 10.1P 20° Spur
- F11 — Fuller 10.1P 21.5° PA Spur
- F61 — Fuller 6.1P 20.5° PA 29° LH
- F63 — Fuller 6.35P 20° PA 22° LH
- F66 — Fuller 6.65P 20° PA 21.5° LH
- F70 — Fuller 7.00P 23° PA 26° LH
- F84 — Fuller 8.38P 18° PA 33.1° LH
- F85 — Fuller 8.55P 21° PA Spur
- F86 — Fuller 8.38P 18° PA 33.1° LH
- M65 — Mack 6.48P 17.5° PA Spur
- M83 — Mercedes 8.38P 17.5° PA 24.9° LH
- S60 — Spicer 6.48P 17.65° PA 26° 10'37" LH
- S68 — Spicer 6P or 6/8P 20° PA Spur Deep Reach
- S70 — Spicer 7P 17.5° PA 28° 4'23" LH
- S71 — Spicer 7P 17.5° PA 18° LH
- S73 — Spicer 7.00P 22.5° PA 19° LH
- U60 — Universal 6P 20° PA Spur
- U68 — Universal 6P or 6/8P 20° PA Spur

Speed Ratios*

- 03 — 0.33:1
- 04 — 0.44:1
- 05 — 0.47:1
- 07 — 0.71:1
- 09 — 0.87:1
- 12 — 1.15:1
- 14 — 1.44:1 (8-Bolt Only)

Special Feature Options

- X — None
- C — Pulse Generator/Pressure Lube/SPD-2000
- D — Pulse Generator & SPD-2000
- P — Pressure Lube
- R — Pulse Generator/No Pressure Lube
- S — Pulse Generator/Pressure Lube
- 2 — 2021 & Later Hino (S Shift Type Only)

Output Options

- B — 1¼" Round Keyed Shaft
- C — 1410 Companion Flange
- I — 36mm -8T, DIN 5462 (Euro)
- K — SAE "B" 7/8" -13T, SAE "B" 2- & 4-Bolt
- L — 1" -15T, Low-Box Mount
- P — SAE "BB" 1" -15T, SAE "B" 2- & 4-Bolt
- Q — SAE "B" 7/8" -13T, SAE "A" 2-Bolt
- R — SAE "A" 5/8" -9T, SAE "A" 2-Bolt
- S — SAE "B" 7/8" -13T, SAE "B" 2-Bolt
- T — SAE 3/4" -11T, SAE "A" 2-Bolt
- Z — SAE "C" 1¼" -14T, SAE "B" 2- & 4-Bolt
- 2 — DIN 100 Companion Flange

Assembly Arrangements

- 1 — Right Side Shaft Low
- 2 — Right Side Shaft Low, Gear to Rear
- 3 — Left Side Shaft Low
- 4 — Left Side Shaft Low, Gear to Rear

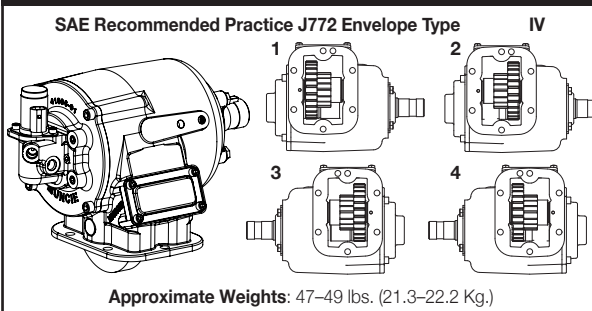
Shift Options

- A — Manual Air
- B — 12 V Electric/Hydraulic (I84 Only)
- D — 12 V Electric/Hydraulic 2013 Ram
- E — 12 V Electric/Air
- F — 24 V Electric/Air
- G — 12 V Electric/Hydraulic Ram (2014+ Gas or Diesel Integral Solenoid) (I84 Only)
- H — 12 V Electric/Hyd. (Auto Trans. Only)
- J — 24 V Electric/Hyd. (Auto Trans. Only)
- N — 12 V Electric/Hydraulic** (1 Arr. PTO, Left Side; 3 Arr. PTO, Right Side Integral Solenoid) (A67/I84 Only)
- P — Manual Air Shift Less Activation Controls
- R — 24 V Electric/Hydraulic** (Integral Solenoid) (I84 Only)
- S — 12 V Electric/Hydraulic** (Integral Solenoid) (A67/I84 Only)
- U — Hydraulic Shift** Less Activation Controls (Integral Solenoid)
- 2 — 12 V Electric/Hydraulic GM 4500-6500 (2019 & Later) & International CV

Note:

- * Not all combinations are available for input gear options. Refer to the application catalog or the service parts list for additional information.
- ** Integral Solenoid Shift CS6 Only.

ASSEMBLY ARRANGEMENTS



TORQUE AND HORSEPOWER RATINGS

Speed Ratio	Intermittent HP @ 1,000 RPM (kW)	Intermittent Torque lbs.ft. (Nm)	Continuous Torque lbs.ft. (Nm)
03	57 (43)	300 (407)	210 (285)
04	57 (43)	300 (407)	210 (285)
05	57 (43)	300 (407)	210 (285)
06	57 (43)	300 (407)	210 (285)
07	57 (43)	300 (407)	210 (285)
09	52 (39)	275 (373)	193 (261)
12	52 (39)	275 (373)	193 (261)
14	52 (39)	275 (373)	193 (261)

FA SERIES CLUTCH SHIFT

MODEL NUMBER CONSTRUCTION

FA 6B-184 06-H 3 B X

PTO Series

FA — Clutch Shift

Mounting Option

6B — SAE 6-Bolt Std. Mtg. — Metric Kit

Transmission Input Gear Option

184 — Aisin 8.46P 20°PA Spur

Speed Ratio

06 — 0.62:1

Note:

* Driveline output is not possible on 4x4 chassis

Special Feature Option

X — None

Output Options

B — 1½" Round Keyed Shaft

Q — SAE "B" ¾" -13T, SAE "A" 2-Bolt

T — SAE ¾" -11T, SAE "A" 2-Bolt

Assembly Arrangement

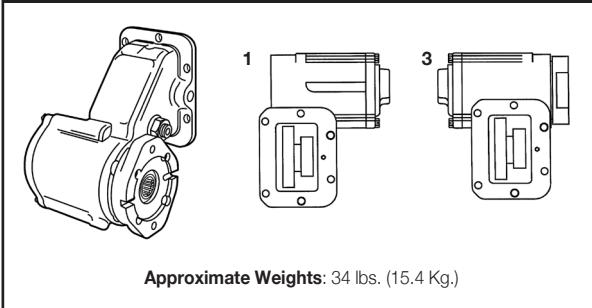
3 — Left Side Shaft Low

Shift Options

B — Electric/Hydraulic (184 Isuzu Chassis Only)

H — 12 V Electric/Hydraulic (AISIN Only)

ASSEMBLY ARRANGEMENTS



TORQUE AND HORSEPOWER RATINGS

Speed Ratio	Intermittent HP @ 1,000 RPM (kW)	Intermittent Torque lbs.ft. (Nm)	Continuous Torque lbs.ft. (Nm)
06 (FA6B-184)	15 (11)	79 (107)	79 (107)
06 (FA6B-184/ AS69RC Transmission)	24 (18)	124 (168)	89 (121)

FR67 SERIES CLUTCH SHIFT

MODEL NUMBER CONSTRUCTION

FR 67 - F15 06 - G 4 N X

PTO Series

FR — Ford Automatic

Mounting Option

67 — 6-Bolt Mount 4x2 or 4x4 Chassis

Transmission Input Gear Option

F15 — Ford 5R110

Speed Ratio

06 — 0.583:1

Shift Options

- H — 12 V Electric/Hydraulic (2003–2004)
- D — Standard Diesel (2005–2010)
- G — Standard Gas (2005–2011)
- F — Gas (2008–2011) (FR67)
- Z — Special Utility OEM (2005–2010) (FR67)
- X — None

Special Feature Option

X — None

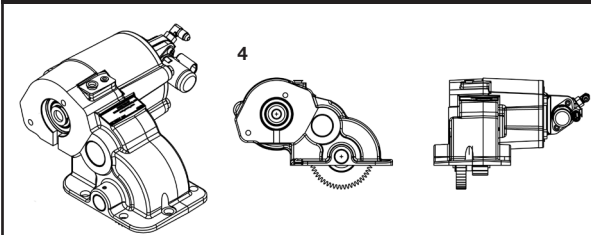
Output Options

- B — 1¼" Round Keyed Shaft
- N — ¾" -11T MPP "N" Pump Mount (FR67)

Assembly Arrangement

4 — Left Side Shaft Low, Gear to Rear

ASSEMBLY ARRANGEMENTS



Approximate Weights: 34 lbs. (15.4 Kg.)

TORQUE AND HORSEPOWER RATINGS

Speed Ratio	Intermittent HP @ 1,000 RPM (kW)	Intermittent Torque lbs.ft. (Nm)	Continuous Torque lbs.ft. (Nm)
06 (FR67)	36 (27)	190 (258)	133 (181)

FR6Q SERIES CLUTCH SHIFT

MODEL NUMBER CONSTRUCTION

FR6Q-F12-09-D-3-Q-X

PTO Series

FR6Q — Ford 6-Bolt Quiet

Transmission Input Gear Option

F12 — Ford 6R140

Speed Ratio Option

09 — .90:1

Shift Options

- 6 — Electric/Hydraulic 2016 & Later F-650-F-750 Diesel Engine;
2017 & Later F-250-F-550 Diesel Engine
- F — Electric/Hydraulic 2016 & Later F-650-F-750 Gas Engine;
2017 & Later F-250-F-550 Gas Engine
- D — Electric/Hydraulic 2016 & Earlier F-250-F-550 Diesel Engine
- G — Electric/Hydraulic 2015 & Earlier F-650-F-750 Gas Engine

Special Feature Options

- X — None
- B — Stationary **AND** Mobile
(Only available on 6, F, & D shift types)
- 6 — **Muncie Start**[®] Stationary **OR** Mobile
- 7 — **Muncie Start**[®] Stationary **AND** Mobile
(Only available on 6, F, & D shift types)

Output Options

- B — 1¼" Round Keyed Shaft (4x2 Only)
- N — ¾" -11T MPP "N" Pump Mount
- Q — SAE "B" 7/8" -13T, SAE "A" 2-Bolt (4x2 Only)
- T — SAE ¾" -11T, SAE "A" 2-Bolt (4x2 Only)

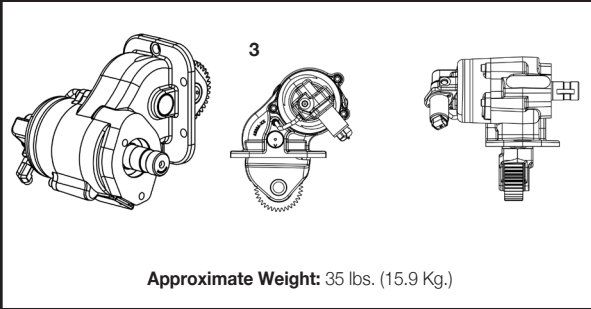
Assembly Arrangement

- 3 — Left Side Shaft Low

Note:

* Driveline output is not possible on 4x4 chassis.

ASSEMBLY ARRANGEMENTS



TORQUE AND HORSEPOWER RATINGS

Speed Ratio	Intermittent HP @ 1,000 RPM (kW)	Intermittent Torque lbs.ft. (Nm)	Continuous Torque lbs.ft. (Nm)
09 Stationary	39 (29)	200 (271)	140 (190)
09 Mobile	22 (16)	120* (162)	120 (162)

*FR6Q limit in mobile applications for continuous and intermittent

RL SERIES REVERSABLE

MODEL NUMBER CONSTRUCTION

RL 6D - U68 05 - L 3 B X

PTO Series

RL — Reversible L Series

Mounting Options

6D — SAE 6-Bolt Non-Std. Mtg.
 6C — SAE 6-Bolt Non-Std. Mtg. — Metric Studs
 6K — SAE 6-Bolt Non-Std. Mtg. — Less Stud Kit
 8S — SAE 8-Bolt Std. Mtg.
 8B — SAE 8-Bolt Std. Mtg. — Metric Studs
 8L — SAE 8-Bolt Std. Mtg. — Less Stud Kit

Transmission Input Gear Options

C57 — Clark 5.700P 25° PA 38.7° LH
 C61 — Clark 6.100P 25° 32° 16' 48" LH
 F61 — Fuller 6.1P 20.5° PA 29° LH
 F63 — Fuller 6.35P 20° PA 22° LH
 M65 — Mack 6.48P 17° 30' Spur
 S60 — Spicer 6P 17.5° 26° 10' 37" LH
 S70 — Spicer 7P 17.5° 28° 4' 23" LH
 U57 — Universal 5 or 5/7P 20° Spur
 U68 — Universal 6 or 6/8P 20° Spur

Special Feature Option

X — None

Output Option

B — 1¼ Round Keyed Shaft

Assembly Arrangements

2 — Right Side Shaft Low, Gear to Rear
 3 — Left Side Shaft Low

Shift Options

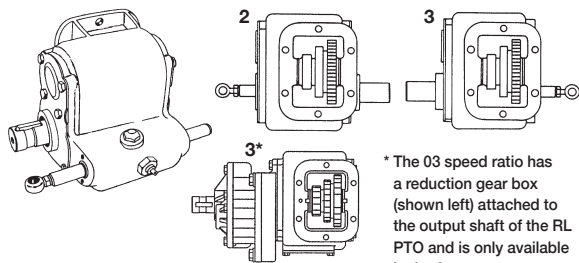
A — Manual Air
 L — Lever

Speed Ratios

03 — .24:1 (Low Box)
 05 — .50:1

ASSEMBLY ARRANGEMENTS

SAE Recommended Practice J772 Envelope Type III



* The 03 speed ratio has a reduction gear box (shown left) attached to the output shaft of the RL PTO and is only available in the 3 arrangement.

Approximate Weights: 25 lbs. (11.34 Kg.) 6-Bolt; 28 lbs. (12.7 Kg.) 8-Bolt

TORQUE AND HORSEPOWER RATINGS

Speed Ratio	Intermittent HP @ 1,000 RPM (kW)	Intermittent Torque lbs.ft. (Nm)	Continuous Torque lbs.ft. (Nm)
03	38 (28)	200 (271)	N.A. (N.A.)
05	38 (28)	200 (271)	N.A. (N.A.)

82 SERIES MECHANICAL SHIFT

MODEL NUMBER CONSTRUCTION

82 8S-U68-05 L-1-C-X

PTO Series

82 — 8-Bolt 82 Series

Mounting Options

8S — SAE 8-Bolt Std. Mtg.
 8B — SAE 8-Bolt Std. Mtg. — Metric Studs
 8L — SAE 8-Bolt Std. Mtg. — Less Stud Kit
 8F — SAE 8-Bolt Non-Std. — Eaton Endurant (E70 & E80)
 8R — SAE 8-Bolt Std. Mtg. — Special Roller Bearing

Transmission Input Gear Options

E70 — Eaton 7.055P 20° PA Spur
 E80 — Eaton 8.048P 20° PA 28.98 RH
 F11 — Fuller 10.1P 21.5° PA Spur
 F68 — Fuller 6 or 6/8P 20° Spur
 M65 — Mack 6.48P 17° 30' Spur
 S70 — Spicer 7P 17.5° PA 28° 4' 23" LH
 U57 — Universal 5 or 5/7P 20° Spur
 U62 — Universal 6P 25° PA Spur
 U68 — Universal 6 or 6/8P 20° Spur

Speed Ratios

05 — .47:1
 06 — .60:1
 08 — .75:1
 09 — .93:1
 10 — 1.00:1
 12 — 1.15:1
 13 — 1.33:1
 15 — 1.50:1
 19 — 1.89:1 (Cannot be sold in kit form)

Special Feature Options

X — None
 G — Greaseable Output Shaft (EG, PG, & ZG Only)
 P — Pressure Lubrication
 8 — Greaseable Shaft Plus Pressure Lube

Output Options

C — 1410 Companion Flange
 D — SAE "B" 7/8" -13T, SAE "B" 2- & 4-Bolt
 E — SAE "C" 1 1/4" -14T, SAE "C" 2- & 4-Bolt
 I — DIN 5462
 P — SAE "BB" 1" -15T, SAE "B" 2- & 4-Bolt
 U — SAE "C" Double Output Flanges*
 Z — SAE "C" 1 1/4" -14T, SAE "B" 2- & 4-Bolt
 2 — DIN 100 Companion Flange

Assembly Arrangements

1 — Right Side Shaft Low
 2 — Right Side Shaft Low, Gear to Rear
 3 — Left Side Shaft Low
 4 — Left Side Shaft Low, Gear to Rear
 5 — Tall Housing—Right Side Shaft Low
 6 — Tall Housing—Right Side Shaft Low, Gear to Rear
 7 — Tall Housing—Left Side Shaft Low
 8 — Tall Housing—Left Side Shaft Low, Gear to Rear

Shift Options

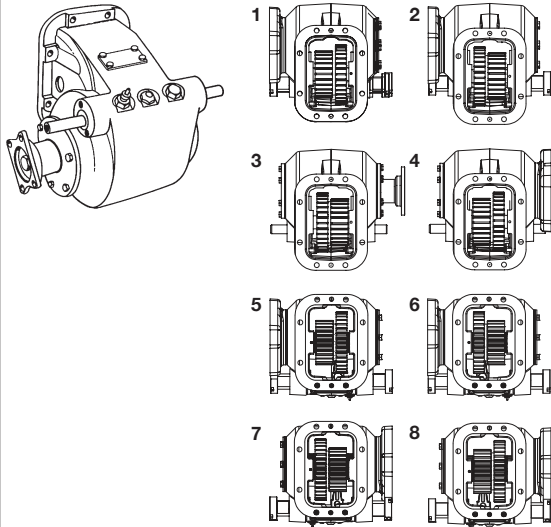
L — Lever
 M — Constant Mesh
 R — Double Acting Manual Air (Dual Cylinder)
 S — 12 V Double Acting Electric/Air (Dual Cylinder)
 T — Air Shift (Less Activation Controls) (Dual Cylinder)

Note:

* Limited availability, contact Muncie Power Products Customer Service.

ASSEMBLY ARRANGEMENTS

SAE Recommended Practice J772 Envelope Type IV



Approximate Weights: 85 lbs. (38.6 Kg.)

TORQUE AND HORSEPOWER RATINGS

Speed Ratio	Intermittent HP @ 1,000 RPM (kW)	Intermittent Torque lbs.ft. (Nm)	Continuous Torque lbs.ft. (Nm)
05	95 (71)	500 (678)	350 (475)
06	85 (63)	450 (610)	315 (427)
08	85 (63)	450 (610)	315 (427)
09	78 (58)	410 (556)	287 (389)
10	78 (58)	410 (556)	287 (389)
12	71 (53)	375 (508)	263 (256)
13	71 (53)	375 (508)	263 (256)
15	67 (50)	350 (475)	245 (332)
19	57 (43)	300 (407)	210 (285)

A30 SERIES CONSTANT DRIVE

MODEL NUMBER CONSTRUCTION

A30-A10 07-MX 3 BB PX XX

PTO Series

A30 — Medium Duty Constant Drive 10-Bolt

Transmission Input Gear Option

A10 — Allison 3000/4000 Series

Speed Ratios

- 05 — .54:1
- 06 — .63:1
- 07 — .73:1
- 08 — .84:1
- 09 — .90:1
- 10 — .97:1
- 11 — 1.11:1
- 12 — 1.19:1
- 15 — 1.48:1

Shift Option

MX — Constant Drive

Assembly Arrangements

- 1 — Right Side Shaft Low
- 3 — Left Side Shaft Low
- 5 — No Offset (Straight Out From Opening)

Notes:

- * Wet Spline Option Available
- ** Special Flange Arrangement Example: A1 or T3; for proper code selection adjust flange to the ideal position and note the letter that aligns centered with the marked dots.
- *** Use with Shaft Extension

Flange Position Codes**

- A1-T3 — Custom Flange Position
- XX — Flange Shipped Loose
- Blank — Default Position

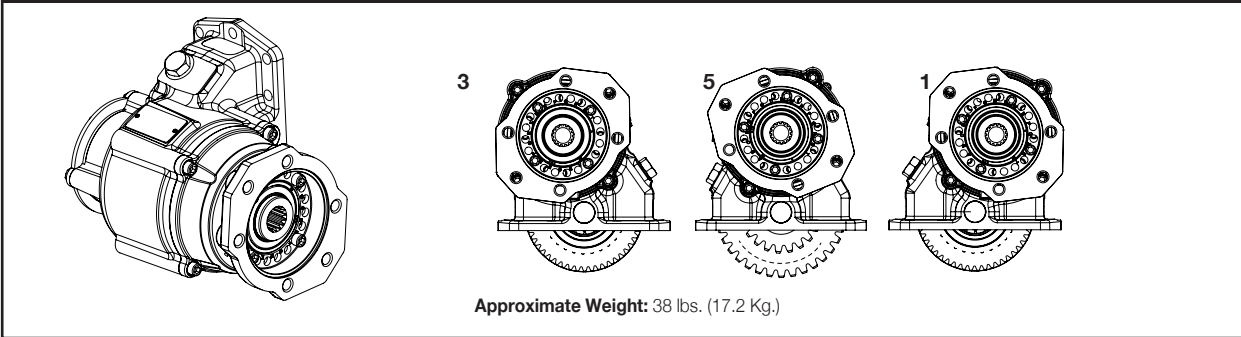
Special Feature Options

- PX — Standard Hose Kit
- PW — Wet Spline & Standard Hose Kit***
- BX — Top Opening Hose Kit
- BW — Top Opening Hose Kit Wet Spline
- US — Pulse Generator & SPD-2000
- UB — Pulse Generator & Top Opening Hose Kit
- UX — Pulse Generator & Standard Hose Kit
- XX — Delete Hose Kit

Output Options

- 1X — 1 1/4" Round Keyed Shaft
- BA* — SAE "B" 7/8" -13T, SAE "A" 2-Bolt
- BB* — SAE "B" 7/8" -13T, SAE "B" 2- & 4-Bolt
- BS* — SAE "B" 7/8" -13T, SAE "B" 2-Bolt
- CB* — XSMC Shaft Extension Mount***
- CC* — SAE "C" 1 1/4" -14T, SAE "C" 2- & 4-Bolt
 - || — DIN 5462
- PB* — SAE "BB" 1" -15T, SAE "B" 2- & 4-Bolt
- PS* — SAE "BB" 1" -15T, SAE "B" 2-Bolt
- TA — SAE 3/4" -11T, SAE "A" 2-Bolt
- X2 — 1 1/2" -10T, DIN 100 Companion
- X4 — 1 1/2" -10T Male, 1410 Companion Flange
- XX — 1 1/2" -10T Male, For Companion Flange
- ZB — SAE "C" 1 1/4" -14T, SAE "B" 2- & 4-Bolt

ASSEMBLY ARRANGEMENTS



TORQUE AND HORSEPOWER RATINGS

Speed Ratio	Engine % 3000/4000 Series	Intermittent/Continuous HP @ 1,000 RPM (kW)	Intermittent/Continuous Torque lbs.ft. (Nm)
05	74 / 105	77 (57)	400 (542)
06	85 / 122	77 (57)	400 (542)
07	99 / 141	79 (59)	415 (563)
08	114 / 163	69 (51)	360 (488)
09	122 / 176	65 (48)	340 (461)
10	131 / 187	59 (44)	310 (420)
11	151 / 215	52 (39)	275 (373)
12	162 / 231	50 (37)	265 (359)
15	201 / 287	39 (29)	205 (278)

CS10/11 SERIES CLUTCH SHIFT

MODEL NUMBER CONSTRUCTION

CS 10-A10 05 H 1 C X

PTO Series

CS — Clutch Shift

Mounting Options

10 — 10-Bolt Mount
11 — 10-Bolt Mount Remote Solenoid

Transmission Input Gear Option

A10 — Allison 10.16P RH

Speed Ratios

05 — .57:1
06 — .64:1
07 — .72:1
08 — .85:1
10 — .95:1

Shift Options

H — 12 V Electric/Hydraulic
J — 24 V Electric/Hydraulic

Note:

* Extended Shaft not included

Special Feature Options

X — None
B — Hose Kit for Top Opening
D — Pulse Generator & SPD-2000
U — Pulse Generator
3 — Lube Hose Optional Length — 17"
4 — Lube Hose Delete
(Pressure Lube and Activation Hose included on all units)

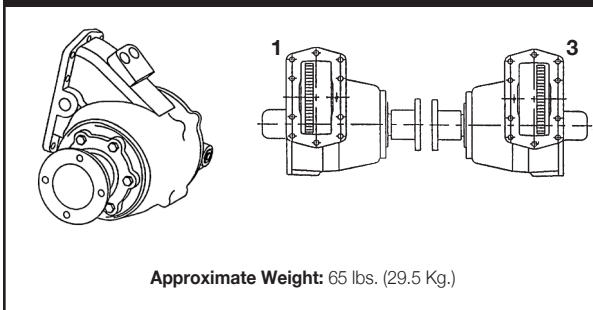
Output Options

B — 1¼" Round Keyed Shaft
C — 1410 Companion Flange
D — SAE "B" 7/8" -13T, SAE "B" 2- & 4-Bolt
E — SAE "C" 1¼" -14T, SAE "C" 2- & 4-Bolt
I — DIN 5462
P — SAE "BB" 1" -15T, SAE "B" 2- & 4-Bolt
S — SAE "B" 7/8" -13T, SAE "B" 2-Bolt
V — Extended Shaft Option*
Y — SAE "C" 1¼" -14T, SAE "C" 2-Bolt
Z — SAE "C" 1¼" -14T, SAE "B" 2- & 4-Bolt
2 — DIN 100 Companion Flange

Assembly Arrangements

1 — Right Side Shaft Low
3 — Left Side Shaft Low

ASSEMBLY ARRANGEMENTS



TORQUE AND HORSEPOWER RATINGS

Speed Ratio	Intermittent HP @ 1,000 RPM (kW)	Intermittent Torque lbs.ft. (Nm)	Continuous Torque lbs.ft. (Nm)
05	95 (71)	500 (678)	350 (475)
06	91 (68)	480 (651)	336 (456)
07	86 (64)	450 (610)	315 (427)
08	80 (60)	420 (569)	294 (398)
10	73 (54)	385 (522)	270 (365)

A20 SERIES CLUTCH SHIFT

MODEL NUMBER CONSTRUCTION

A 20 - A 10 07 - H X 3 B B P X X X

PTO Series

A20 — Medium Duty Clutch Shift 10-Bolt

Transmission Input Gear Option

A10 — Allison 3000/4000 Series

Speed Ratios

05 — .54:1
 06 — .63:1
 07 — .73:1
 08 — .84:1
 09 — .90:1
 10 — .97:1
 11 — 1.11:1
 12 — 1.19:1
 15 — 1.48:1

Shift Options

HX — 12 V Electric/Hydraulic
 HR — 12 V Electric/Hydraulic Remote Mount
 JX — 24 V Electric/Hydraulic
 JR — 24 V Electric/Hydraulic Remote Mount
 XX — Electric/Hydraulic w/o Activation Components
 RX — 12 V Reduced Harness (Wiring Pigtails Only)
 SX — 12 V **Muncie Start**® Integral
 SR — 12 V **Muncie Start**® Remote Mount
 HH — 12 V Electric/Hydraulic Hino 2015–2020
 H2 — 12 V Electric/Hydraulic Hino 2021 & Newer
 J2 — 24 V Electric/Hydraulic Hino 2021 & Newer
 S2 — 12 V **Muncie Start**® Hino 2021 & Newer
 RS — Reduced Harness **Muncie Start**®

Assembly Arrangements

1 — Right Side Shaft Low
 3 — Left Side Shaft Low
 5 — No Offset (Straight Out From Opening)

Flange Position Codes**

A1-T3 — Custom Flange Position
 XX — Flange Shipped Loose
 Blank — Default Position

Special Feature Options

PX — Standard Hose Kit
 PW — Wet Spline w/Standard Hose Kit***
 BX — Top Opening Hose Kit
 BW — Top Opening Hose Kit Wet Spline
 US — Pulse Generator & SPD-2000
 UX — Pulse Generator & Standard Hose Kit
 UB — Pulse Generator & Top Opening Hose Kit
 XX — Delete Hose Kit

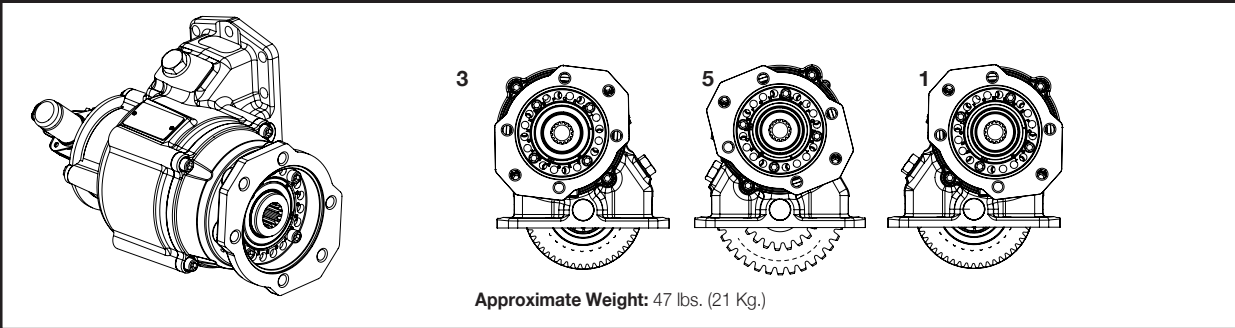
Output Options

1X — 1¼" Round Keyed Shaft
 2I — DIN 5462 Euro
 AA — SAE "A" 5/8" -9T, SAE "A" 2-Bolt
 BA* — SAE "B" 7/8" -13T, SAE "A" 2-Bolt
 BB* — SAE "B" 7/8" -13T, SAE "B" 2- & 4-Bolt
 BS* — SAE "B" 7/8" -13T, SAE "B" 2-Bolt
 CB* — XSMC Shaft Extension Mount***
 CC* — SAE "C" 1¼" -14T, SAE "C" 2- & 4-Bolt
 II — DIN 5462
 PB* — SAE "BB" 1" -15T, SAE "B" 2- & 4-Bolt
 PS* — SAE "BB" 1" -15T, SAE "B" 2-Bolt
 TA — SAE ¾" -11T, SAE "A" 2-Bolt
 X2 — 1½" -10T, DIN 100 Companion Flange
 X4 — 1½" -10T Male, 1410 Companion Flange
 XX — 1½" -10T Male, For Companion Flange
 ZB — SAE "C" 1¼" -14T, SAE "B" 2- & 4-Bolt

Notes:

* Wet Spline Option Available
 ** Special Flange Arrangement Example: A1 or T3; for proper code selection adjust flange to the ideal position and note the letter that aligns centered with the marked dots.
 *** Use with Shaft Extension

ASSEMBLY ARRANGEMENTS



TORQUE AND HORSEPOWER RATINGS

Speed Ratio	Engine % 3000/4000 Series	Intermittent/Continuous HP @ 1,000 RPM (kW)	Intermittent/Continuous Torque lbs.ft. (Nm)
05	74/105	77 (57)	400 (542)
06	85/122	77 (57)	400 (542)
07	99/141	79 (59)	415 (563)
08	114/163	69 (51)	360 (488)
09	122/176	65 (48)	340 (461)
10	131/187	59 (44)	310 (420)
11	151/215	52 (39)	275 (373)
12	162/231	50 (37)	265 (359)
15	201/287	39 (29)	205 (278)

CS40/41 CLUTCH SHIFT

MODEL NUMBER CONSTRUCTION

CS 41-A10 07-H 3 C X

PTO Series

CS — Clutch Shift

Mounting Options

40 — 10-Bolt Mount

41 — 10-Bolt Mount — Remote Solenoid

Transmission Input Gear Option

A10 — Allison 10.16P RH

Speed Ratios

07 — 0.74:1

10 — 1.06:1

12 — 1.20:1

Shift Options

H — 12 V Electric/Hydraulic

J — 24 V Electric/Hydraulic

Note:

* Extended Shaft not included

Special Feature Options

X — None

B — Hose Kit for Top Opening

D — Pulse Generator & SPD-2000

U — Pulse Generator

3 — Special Hose Kit 17"

6 — **Muncie Start**® Stationary **OR** Mobile

Output Options

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

Z — SAE "B" 1¼" -14T, SAE "B" 2- & 4-Bolt

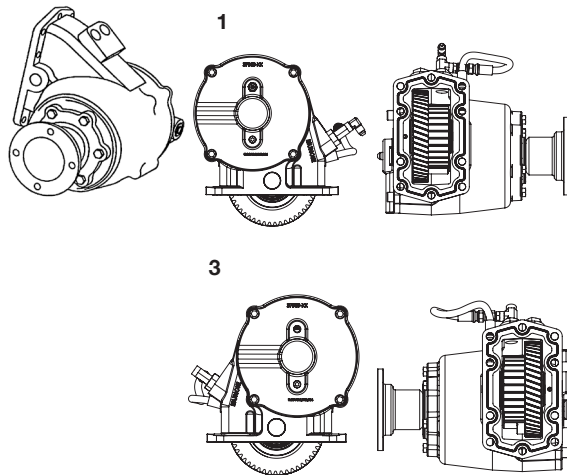
2 — DIN 100 Companion Flange

Assembly Arrangements

1 — Right Side Shaft Low

3 — Left Side Shaft Low

ASSEMBLY ARRANGEMENTS



Approximate Weight: 69 lbs. (31.3 Kg.)

TORQUE AND HORSEPOWER RATINGS

Speed Ratio	Intermittent HP @ 1,000 RPM (kW)	Intermittent Torque lbs.ft. (Nm)	Continuous Torque lbs.ft. (Nm)
07	114 (85)	600 (813)	420 (569)
10	103 (76)	545 (739)	382 (517)
12	93 (70)	490 (664)	343 (465)

F20 SERIES CLUTCH SHIFT

MODEL NUMBER CONSTRUCTION

F20-F13 12 GX 5 TN PX

PTO Series

F20 — Ford

Transmission Input Gear Option

F13 — Ford 10R140

Speed Ratio

12 — 1.18:1

Shift Options

- GX — Gas Engine Standard
- GS — Gas Engine **Muncie Start**[®]
- DX — Diesel Engine Standard
- DS — Diesel Engine **Muncie Start**[®]
- RX — Reduced Harness (Wiring Pigtails Only)
- RS — Reduced Harness **Muncie Start**[®]

Special Feature Options

- PX — Single Mode (Either Stationary **OR** Mobile)
- PB — Dual Mode (Both Stationary **AND** Mobile)

Output Options

- 1X — 1¼" Round Keyed Shaft
- BA — SAE "B" 7/8" -13T, SAE-"A" 2-Bolt
- TN — SAE ¾" -11T, MPP "N" Pump Mount
- TA — SAE ¾" -11T, SAE-"A" 2-Bolt
- UU — ISO 14 25mm -6T, 21 UNI 222 3-Bolt Flange

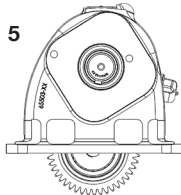
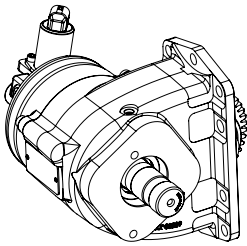
Assembly Arrangement

- 5 — No Offset (Straight Out from Opening)

ASSEMBLY ARRANGEMENTS

SAE Recommended Practice J772 Envelope Type

N.A.



Approximate Weight: 29 lbs. (13.15 Kg.)

TORQUE AND HORSEPOWER RATINGS

Speed Ratio	% of Engine Speed	Intermittent/Continuous HP @ 1,000 RPM (kW)	Intermittent/Continuous Torque lbs.ft. (Nm)
12	130%	50 (37)	261 (354)

F22 SERIES CLUTCH SHIFT

MODEL NUMBER CONSTRUCTION

F22-F13 12 DX 5 TN PX

PTO Series

F22 — Ford

Transmission Input Gear Option

F13 — Ford 10R140

Speed Ratio

12 — 1.18:1

Shift Options

DX — 12 V Diesel Engine Standard

DS — 12 V Diesel Engine **Muncie Start**[®]

RX — 12 V Reduced Harness (Wiring Pigtails Only)

RS — 12 V Reduced Harness **Muncie Start**[®]

Special Feature Options

PX — Single Mode (Either Stationary **OR** Mobile)

PB — Dual Mode (Both Stationary **AND** Mobile)

Output Options

1X — 1 1/4" Round Keyed Shaft

BA — SAE "B" 7/8" -13T, SAE-"A" 2-Bolt

BB — SAE "B" 7/8" -13T, SAE-"B" 2- & 4-Bolt

TN — SAE 3/4" -11T, MPP "N" Pump Mount

TA — SAE 3/4" -11T, SAE-"A" 2-Bolt

UU — ISO 14 25mm -6T, 21 UNI 222 3-Bolt Flange

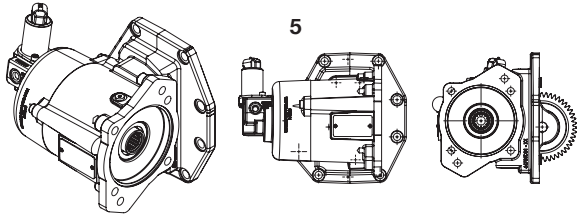
Assembly Arrangement

5 — No Offset (Straight Out from Opening)

ASSEMBLY ARRANGEMENTS

SAE Recommended Practice J772 Envelope Type

N.A.



Approximate Weight: 29 lbs. (13.15 Kg.)

TORQUE AND HORSEPOWER RATINGS

Speed Ratio	% of Engine Speed	Intermittent/Continuous HP @ 1,000 RPM (kW)	Intermittent/Continuous Torque lbs.ft. (Nm)
12	130%	50 (37)	261 (354)

RS4S SERIES REAR MOUNT PTOS

MODEL NUMBER CONSTRUCTION

RS 4S-P82Z1 E 1 C X

PTO Series

RS4S — Rear Shaft Mount 4-Bolt

Mounting Options

4S — Non-Std. 4-Bolt Mount

Application Options

P82 Z1 — ZF Meritor
 P86 Z3 — ZF Meritor
 P86 Z4 — ZF Meritor
 P86 Z5 — ZF Meritor
 P86 VN — Volvo I-Shift/Mack mDRIVE
 P86 VM — Volvo I-Shift/Mack mDRIVE

Dual Application Options

P93 VN — Volvo I-Shift/Mack mDRIVE
 P93 VM — Volvo I-Shift/Mack mDRIVE

Special Feature Option

X — None

Output Options

C — 1310 Companion Flange
 K — SAE "B" 2- & 4-Bolt
 I — DIN 5462

Assembly Arrangement

1 — Standard Rear Mounting

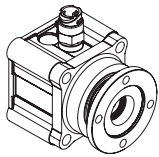
Shift Options

A — Manual Air Shift
 E — 12 V Electric/Air Shift Standard
 P — Air Shift (Less Activation Controls)
 (Rec. VN or VM)
 Z — 12 V Electric/Air Shift (P86Z* Includes
 Harness Meritor)

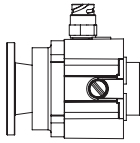
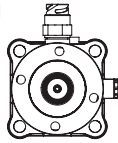
ASSEMBLY ARRANGEMENTS

SAE Recommended Practice J772 Envelope Type

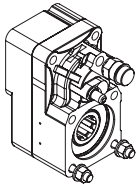
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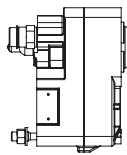
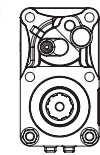
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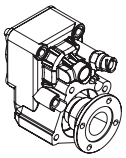
RS4S-P81



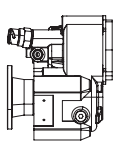
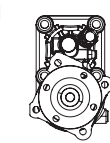
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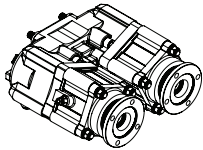
RS4S-P84



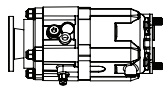
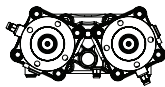
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RS4S-P86



1



RS4S-P93

TORQUE AND HORSEPOWER RATINGS

Internal Ratio	Intermittent HP @ 1,000 RPM (kW)	MAX Torque lbs.ft. (Nm)
P82Z	40 (32)	200 (298)
P81Z2	84 (62)	442 (600)
P81V8	84 (62)	442 (600)
P84Z2	57 (42)	300 (407)
P84Z4	70 (52)	369 (500)
P86VN	70 (52)	369 (500)
P86VM	63 (47)	331 (450)
P93VN	70 (52)	369 (500)
P93VM	63 (47)	331 (450)

RS6S-P89M SERIES DETROIT DT12

MODEL NUMBER CONSTRUCTION

RS 6S-P89 M1 P 1 P X

PTO Series

RS — Rear Counter Shaft

Mounting Option

6S — Non-Std 6-Bolt Mount

Transmission Input Gear Option

P89 — PTO Base Model

Speed Ratios

M1 — 1:0.97 Internal Ratio

M2 — 1:1.32 Internal Ratio

M3 — 1:1.83 Internal Ratio

Shift Option

P — 12 V Electric/Air Shift (Integral Solenoid)

Special Feature Option

X — None

Output Options

C — 1310 Companion Flange

(Add-on Kit: 19KFL10300)

D — 1410 Companion Flange

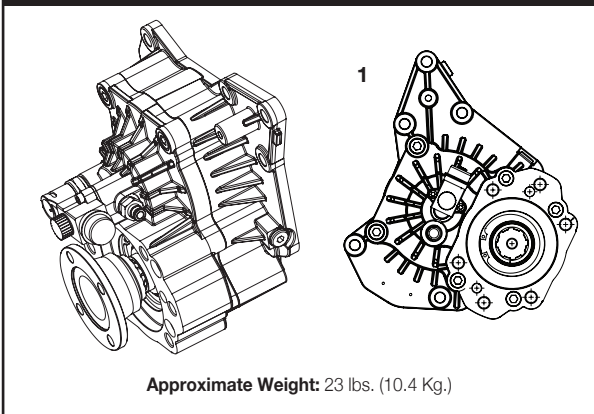
(Add-on Kit: 197KFL10400)

P — 1" -15T Spline, SAE "BB" 2- & 4-Bolt

Assembly Arrangement

1 — Standard Rear Mounting

ASSEMBLY ARRANGEMENTS



TORQUE AND HORSEPOWER RATINGS

Internal Ratio	Intermittent HP @ 1,000 RPM (kW)	MAX Torque lbs.ft. (Nm)
M1	60 (45)	317 (430)
M2	60 (45)	317 (430)
M3	60 (45)	317 (430)

8405A SERIES MECHANICAL SHIFT

MODEL NUMBER CONSTRUCTION

8405A*-07-A-3 K-X

PTO Series

- 8405A — (6P-20° PA Spur) U68
- 8405B — U68 with Metric Stud Kit
- 8406A — (6.48P-17.5° PA Spur) M65
- 8406B — M65 with Metric Stud Kit

Speed Ratios

- 07
- 08
- 09

Shift Options

- A — 12 V Manual Air
- P — Manual Air (Less Activation Kit)

Special Feature Option

- X — None

Output Options

- B — 1¼" Round Keyed Shaft
- K — SAE "B" Pump Mount
- P — SAE "BB" Pump Mount

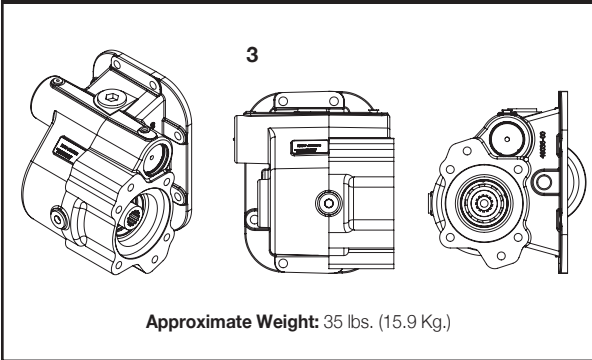
Assembly Arrangement

- 3 — Left Side Shaft Low

Note:

*8405B includes metric stud kit.

ASSEMBLY ARRANGEMENTS



TORQUE AND HORSEPOWER RATINGS

Speed Ratio	Intermittent HP @ 1,000 RPM (kW)	Intermittent Torque lbs.ft. (Nm)	Continuous Torque lbs.ft. (Nm)
07	44 (33)	230 (312)	161 (218)
08	44 (33)	230 (312)	161 (218)
09	39 (29)	205 (278)	144 (195)

P58 SERIES PTO FOR PACCAR TX-8

MODEL NUMBER CONSTRUCTION

P58-Z11 10 XX 5 2I PX

PTO Series

P58 — Paccar TX-8

Transmission Input Gear Option

Z11 — Paccar TX-8

Speed Ratio

10 — 0.97:1

Shift Option

XX — Air Shift Only w/o Activation Components

Special Feature Options

- PX — Left Hand Side Hose Kit
- BX — Right Hand Side Hose Kit

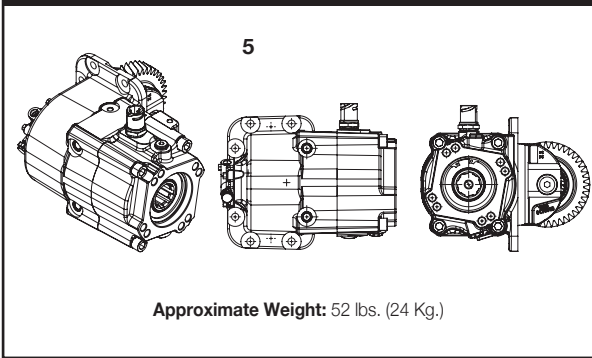
Output Options

- BB — SAE "B" 2- or 4-Bolt
- 2I — DIN 5462 (Euro)
- X3 — 1310 Companion Flange

Assembly Arrangement

- 5 — No Offset

ASSEMBLY ARRANGEMENTS



TORQUE AND HORSEPOWER RATINGS

Internal Ratio	Intermittent HP @ 1,000 RPM (kW)	MAX Torque lbs.ft. (Nm)
10	80 (60)	420 (569)

HC6/8 SERIES HYDROCAR

MODEL NUMBER CONSTRUCTION

HC6S-M7618-A 3 B X

PTO Series

HC6S — 6-Bolt Mount
 HC8S — 8-Bolt Mount

Base PTO Series*

M7618	P2081
M7818	P2107
P09B1	P2138
P09H4	P2195
P09J1	P2244
P09J2	P2254
P09J4	P2262
P09J5	P22Z3
P09W1	P2277
P10J1	P2285
P10J2	P23Z2
P10J3	P2373
P10J4	P2374
P11J1	P2515
P11J2	P26Z1
P13H1	P28H1
P13H3	P28Z6
P15S1	P30MK
P15S2	P30MW
P1623	P33M9
P18G2	P37H2
P18G5	P6082
P1901	P6085
P1935	P6086
P2000	P6088
P2039	

Special Feature Option

X — None

Output Options

B — 1¼" Round Keyed Shaft
 C — 1310 Companion Flange
 D — 1410 Companion Flange
 I — DIN5462
 K — SAE "B" 2- & 4-Bolt, -13T
 P — SAE "B" 2- & 4-Bolt, =15T

Assembly Arrangements

1 — Standard Rear Mounting
 3 — Left Side Shaft Low

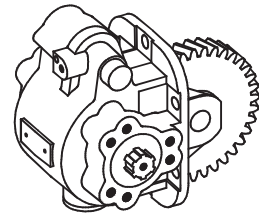
Shift Options

C — Cable
 A — Air (Manual)
 E — 12 V Electric/Air
 P — Air (Less Activation Kit)
 T — Electric (E-Hydra 12 V)

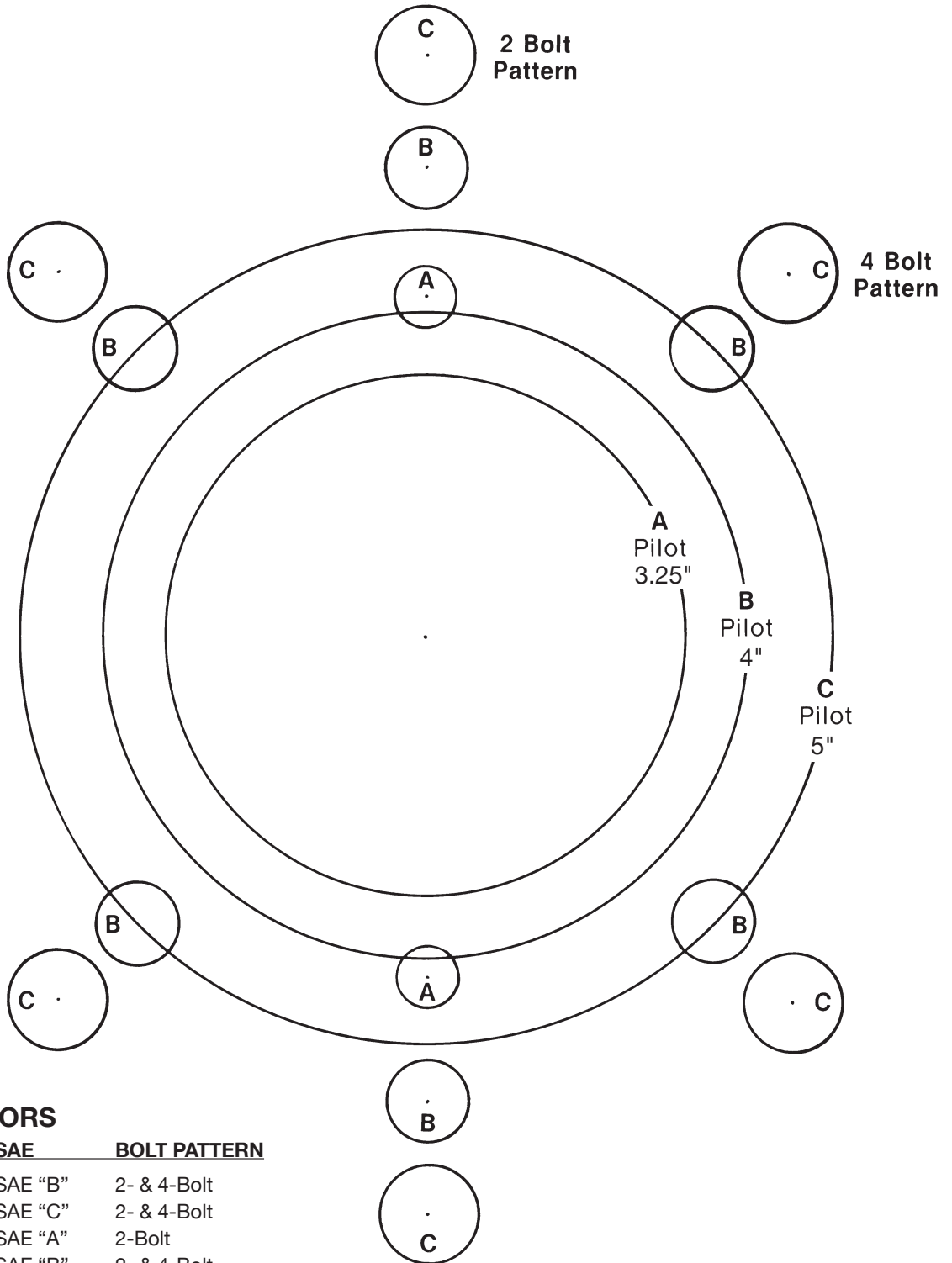
Note:

* Applications, Torque, HP, and Internal Ratios vary.

**HC6S-P11J*-C3*X SHOWN
 LESS OUTPUT FLANGE**



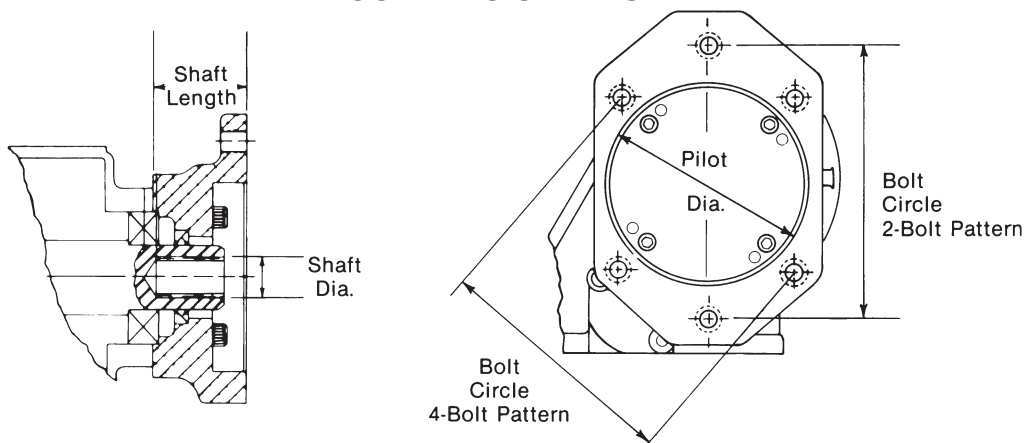
STANDARD SAE HYDRAULIC PUMP MOUNT PILOT DIAMETERS AND BOLT PATTERNS



DESIGNATORS

MUNCIE	SAE	BOLT PATTERN
D, K, P	= SAE "B"	2- & 4-Bolt
E	= SAE "C"	2- & 4-Bolt
F	= SAE "A"	2-Bolt
L	= SAE "B"	2- & 4-Bolt
M	= SAE "A"	2- Bolt "A" – 4-Bolt "B"
Q	= SAE "A"	2-Bolt
R	= SAE "A"	2-Bolt
S	= SAE "B"	2-Bolt
Y	= SAE "C"	2-Bolt
Z	= SAE "B"	2- & 4-Bolt

CONVERSION KITS



DIRECT MOUNT PUMP FLANGE CONVERSION KITS

SUFFIX NO.	PILOT DIA. (IN)	SHAFT DIA. (IN)	TYPE SHAFT	BOLT CIRCLE	MOUNT. HOLES	BOLT SIZE	SHAFT LENGTH	CONVERSION KIT NUMBER
E	5.0	1.25	Spline - 14T	6.38	4	1/2"-13	2.19	No Kit (82, CS10)
				7.12	2	5/8"-11		
F	3.25	0.75	Round - 3/16" Key	4.18	2	3/8"-16	2.66	14TA4527 (TG Only)
I	80mm	36mm	Spline - 8T	113.15mm	4	12mm	60.1mm	14TA4422 (TG Only)
K	4.0	0.88	Spline - 13T	5.0	4	1/2"-13	1.86	14TA4531 (TG Only)
				5.75	2			
KG	4.0	0.88	Spline - 13T	5.0	4	1/2"-13	1.86	14TA4551 (TG Only)
				5.75	2			
L	4.0	0.88	Round - 1/4" Key	5.0	4	1/2"-13	2.38	14TA4550 (TG Only)
				5.75	2			
M	3.25	0.88	Spline - 13T	4.18	4	3/8"-16	1.94	14MA4553 (TG Only)
				4.75	6	13/32" - Thru		
				5.00	4	1/2"-13		
N	2.62	0.75	Round - 3/16" Key	3.25	6**	3/8"-16	2.66	14TA4554 (TG Only)
P	4.00	1.00	Spline - 15T	5.00	4	1/2"-13	2.38	14TA4532 (TG Only)
				5.75	2			
PG	4.00	1.00	Spline - 15T	5.00	4	1/2"-13	2.38	14TA4552 (TG Only)
				5.75	2			
Q	3.25	0.88	Spline - 13T	4.18	2	3/8"-16	1.66	14TA4529 (TG Only)
R	3.25	0.625	Spline - 9T	4.18	2	3/8"-16	1.66	14TA4541 (TG Only)
S	4.00	0.88	Spline - 13T	5.75	2	1/2"-13	1.70	14TA4530 (TG Only)
T	3.25	0.75	Spline - 11T	4.18	2	3/8"-16	1.50	14TA4533 (TG Only)
Y	5.00	1.25	Spline - 14T	7.12	2	5/8"-11	2.19	No Kit (CD, CS10)
Z	4.00	1.25	Spline - 14T	5.00	4	1/2"-13	2.19	14TA4423 (TG Only)
				5.75	2			
6	4.00	0.88	Spline - 13T	5.75	2	1/2"-13	1.86	No Kit (TG Only)

**Only 4 bolts are usable to mount pump.

SHIFTER CONVERSION KITS

TG SERIES				RL SERIES	82 SERIES	
Cable 16MK3735-14-A (1+4)	Standard Air 16MK3803-A (1+4)	Electric Air 16MK0200-A (1+4)	E-Hydra Shift 16MK4682 (1+4)	Standard Air 16MK4261-A	D-Double Acting 16MK3253-A	Q-Double Acting 16MK3252-A
16MK3735-23-A (2+3)	16MK3804-A (2+3)	16MK1200-A (2+3)	16MK4683 (2+3)	All Assemblies	All Assemblies	All Assemblies

TG SERIES KIT PROGRAM

Stocking the Muncie Powerflex® PTO in a kit form can reduce your inventory requirements. To use the program decide on the correct model number of the PTO from the application catalog and assemble using the tables below.

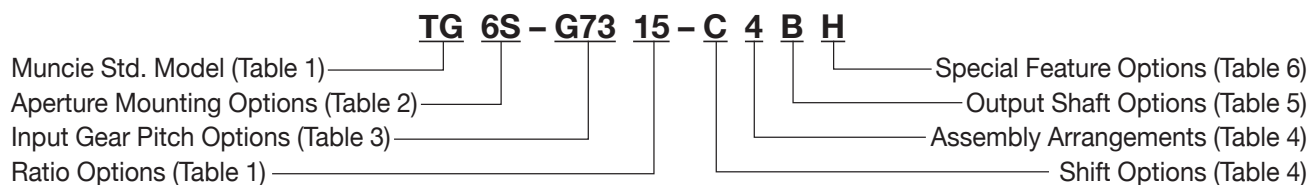


TABLE 1 MUNCIE STD. MODEL W/RATIO OPTIONS – LESS SHIFTER & INPUT GEAR

Part No.			
TG6S-Kit 04 – X * # X	* Assembly Arrangements: (1, 2, 3 or 4)	}	The PTO application catalog typically shows the arrangement for PTOs with the output shaft pointed to the rear and below the centerline of the opening. The TG Kit should be stocked in popular arrangements to minimize the need to physically rearrange a PTO.
TG6S-Kit 05 – X * # X			
TG6S-Kit 06 – X * # X			
TG6S-Kit 07 – X * # X			
TG6S-Kit 08 – X * # X			
TG6S-Kit 09 – X * # X	# Output Shaft Options: (Table 5)	}	The TG Kit should be stocked in the popular output shafts to minimize the need to change output. Flange Kits shown in Table 5 should be stocked for the uncommon assemblies used.
TG6S-Kit 12 – X * # H			
TG6S-Kit 13 – X * # H			
TG6S-Kit 15 – X * # H			
TG6S-Kit 18 – X * # H			
Ratio Sets			
04 Ratio— 02T34278 (36T) 04T34277 (13T)	06 Ratio— 02T34440 (31T) 04T34441 (19T)	08 Ratio— 02T35185 (26T) 04T35186 (23T)	13 Ratio— 02T35362 (21T) 04T35363 (27T)
05 Ratio— 02T34276 (34T) 04T34275 (16T)	07 Ratio— 02T34272 (29T) 04T34271 (21T)	09 Ratio— 02T34398 (26T) 04T34399 (24T)	15 Ratio— 02T39172 (20T) 04T34598 (29T)
		12 Ratio— 02T35162 (23T) 04T35155 (26T)	18 Ratio— 02T34601 (18T) 04T34605 (31T)

TABLE 2 TG APERTURE MOUNTING OPTIONS

Part No.	Part No.
6S – SAE 6-Bolt Std. Mtg. – Use TG6S-Kit	8S – SAE 8-Bolt Std. Mtg. – Use TG8S-Kit
6D – SAE 6-Bolt Non-Std. Mtg. – Use TG6S-Kit. Input gear design will change mounting depth of PTO. This is <u>NOT</u> a Housing change.	8D – SAE 8-Bolt Non-Std. Mtg. – Use TG8S-Kit Input gear design will change the mounting depth of the PTO. This is <u>NOT</u> a Housing change.
6N – Non-Standard Housing*	8M – SAE 8-Bolt Extra Deep Mount – This type is not stocked as a kit. Stock the special housing (01T35032) then change the housing as needed.
6A – SAE 6-Bolt Std. Mtg. w/29TK3863 – Use TG6S-Kit and 03T35730 (N56) gear only.	8B – Same as 8S – Use metric Stud Kit 20MKM800 (RL8), 20MKM801 (TG, SH8, CS8), or 20MKM802 (82 or 83)
6B – Same as 6S – Replace Stud Kit with metric 20MKM602	8C – Same as 8D – Use metric Stud Kit 20MKM801 (TG, CS8), or 20MKM802 (82)
6C – Same as 6D – Replace Stud Kit with metric 20MKM602	8K – Same as 8D – Without Stud Kit
6K – Same as 6D – Without Stud Kit	8L – Same as 8S – Without Stud Kit
6L – Same as 6S – Without Stud Kit	
6F – Non-Standard Housing#	

Note: * Not sold as kit without gear. Can only be used w/03T35350 (I85), 03T35540 (S71) or 03T37918 (S73).
Not sold as kit without gear. Can only be used w/03T37740 (F84).

TG SERIES KIT PROGRAM

TABLE 3

TG INPUT GEAR PITCH OPTIONS

U60 04

ITEM 12				ITEM 12			
INPUT-GEAR	TEETH	TRANS	NOTE	INPUT GEAR	TEETH	TRANS	NOTE
03T38783	(30T)	A69	3	03T37655A	(35T)	N10	9
03T34810	(18T)	C57		03T35730	(16T)	N56	7
03T34452	(23T)	C60		03T39158	(24T)	N70	5
03T34454	(20T)	C61		03T35489A	(30T)	N79	8, 9
03T34453	(24T)	C70		03T35488A	(28T)	N80	8, 9
03T34455	(28T)	C76		03T34457	(28T)	N81	
03T40079	(37T)	D94		03T34286	(21T)	S60	
03T64783	(27T)	E70		03T96746	(22T)	S61	
03T62715	(33T)	E80	10	03T38184	(22T)	S63	
03T94192	(42T)	F10		03T94243	(26T)	S68	
03T35189	(42T)	F11		03T34287	(24T)	S70	
03T35031	(21T)	F61		03T35540	(29T)	S71	
03T35613	(25T)	F62		03T37918	(28T)	S73	
03T35024	(24T)	F63		03T38546	(29T)	T81	
03T35025	(25T)	F65		03T35650	(28T)	T82	
03T38140	(24T)	F66		03T34451	(20T)	U57	
03T37657	(26T)	F70		03T34285	(24T)	U60	1
03T96626	(29T)	F75		03T39495	(24T)	U62	
03T37740	(28T)	F84	2	03T34284	(24T)	U68	
03T43207	(31T)	F89		03T34326	(31T)	W80	6
03T34325	(27T)	G73		03T96773	(24T)	X68	
03T35180	(30T)	G85		03T17306A	(38T)	Z10	9
03T37328	(34T)	I84		03T39491A	(32T)	Z90	9
03T34597	(26T)	M65		03T37260A	(32T)	Z92	9
03T38530	(31T)	M80	4	03T35935A	(37T)	Z98	9
03T38531	(30T)	M83		03T17307A	(31T)	Z99	9

ITEM 14			ITEM 10	
RATIO	RATIO GEAR	TEETH	OUTPUT GEAR	TEETH
04	04T34277	(13T)	02T34278	(36T)
05	04T34275	(16T)	02T34276	(34T)
06	04T34441	(19T)	02T34440	(31T)
07	04T34271	(21T)	02T34272	(29T)
08	04T35186	(23T)	02T35185	(26T)
09	04T34399	(24T)	02T34398	(26T)
12H	04T35155	(26T)	02T35162	(23T)
13H	04T35363	(27T)	02T35362	(21T)
15H	04T34598	(29T)	02T39172	(20T)
18H	04T34605	(31T)	02T34601	(18T)

Note-Item 10 and 14: Input Ratio Gear & Output Gear must be used in pairs as shown above.

The TG Series PTO is designed to allow easy change from one model transmission to another by changing only one gear and to allow changing speeds by changing two gears.

The chart shows gear part numbers for each transmission designator (Ex: U60) and each speed ratio available (Ex: 04).

X68 INPUT GEAR:

Mack Trucks and TTC/Spicer provide 6-pitch spur gear drive gears which have a modified tooth profile and this profile makes it possible to have contact with the root of our standard U68 PTO gear as it is designed for the TG PTO. The X68 was design to eliminate this problem. The X68 gear can be used anywhere the U68 gear is used, but it must be used with the additional 23M60032S or 23M80032 spacer. The U68 gear should NOT be used on any application page showing the X68 input gear designator.

S68 INPUT GEAR:

The S68 input gear is a larger 6-pitch spur gear than the U68 or X68 input gear. This causes the gear to stick out of the housing further (or reach in deep into the transmission) thus the use of the "D" deep mount designator. The S68 is available in the TG Series as well as the SH/CS6/8 Series. (Note that the SH/CS Series with the S68 input gear are limited to the 07, 09, 12 ratios and the SH8D-S6813 or CS8D-S6814 ratios.)

The S68 is designed to fit either the U68 or X68 application without internal tooth interference. As an option, the S68 input gear can be used in place of the U68 or X68 when used with the additional spacer and stud kit as shown on the application page. Changing from the X68 or U68 to the larger S68 will change the output speed shown on the page, use multiplier .92 to determine the new PTO output percentage.

Notes- Item 12:

- When using this gear, replace the gasket pack with 52MK1002 or add 13M13541 gasket/shim when used with 04 or 05 ratio on Allison transmissions. Note that the TG04 ratios kits from Muncie Power include this gasket (kit), but the TG05 ratio kits do not.
- With this gear a special housing (01T37765 w/(2) 26T37992 pins), a stud kit 20TK4049 (metric), and 52TK4113 packet is used. Use of any other housing is not approved.
- The TG Series PTO always uses a special shifter cover when this input gear is used. Requires 20MKM604 stud kit and 23M60270 spacer and 52TK4470 kit to be used with the installation of the PTO & shift collar (49T38158).
- Used only with special housing 01T35342 (N) and metric stud kit 20MKM602.
- When selling this gear include the visor seal decal, 36M35665TC, with the boxed gear. When assembling a unit mount this decal on the visor label included with the PTO before applying to vehicle visor.
- 13M51717 tube, gasket eliminator, is to be included with the boxed gear or when assembled into a unit.
- Requires adapter plate kit 29TK3863.
- Include special lube sheet MC94-02.
- Gears with "A" include (2) coated thrust washers 21T38375 (item 11).
- E80 requires special output shaft.

TABLE 4
TG SHIFT KIT/ASSEMBLY
ARRANGEMENT OPTIONS

KIT NO.		ASSY.
A – Manual Air	16MK3803-A	(1 & 4)
	16MK3804-A	(2 & 3)
<i>Kit includes shift cover, installation parts bag, & indicator light switch.</i>		
C – Cable Control	16MK3735-14-A	(1 & 4)
	16MK3735-23-A	(2 & 3)
<i>Kit includes shift cover, cable, knob, hook-up kit, indicator light kit, & indicator light switch.</i>		
D – Double Acting Air	16TA3955 and 30T38111	(1 & 4)
	16TA3955 and 30T38110	(2 & 3)
<i>Kit also requires 48M61261-A activation kit.</i>		
E – 12 V Electric Air	16MK0200-A	(1 & 4)
	16MK1200-A	(2 & 3)
<i>Kit includes shift cover, installation parts bag, & indicator light switch.</i>		
N – Special Electric-Shift (N56 only)	16TA3803 and 30T38111 or	(1 & 4)
	16TA3804 and 30T38110	(2 & 3)
	<i>This kit also requires 48TK4516 (2003 MY) or 48TK4517 (1999-2002 MY) installation parts bag. Sold separately.</i>	
P – Air Shift (Cover only)	16MK3803-PA	(1 & 4)
	16MK3804-PA	(2 & 3)
<i>Kit includes the indicator light switch and connector.</i>		
R – Lever Control	16MK3919-14-A	(1 & 4)
	16MK3919-23-A	(2 & 3)
<i>Kit includes the shift cover, indicator light kit, & indicator light switch.</i>		
S – Lectra Shift	16MK3848-A	(1 & 4)
	16MK3849-A	(2 & 3)
<i>Kit includes shift cover, installation parts bag, wiring harness with relay, & indicator light switch.</i>		
T – E-Hydra Shift	16TK5024	(1 & 4)
	16TK5025	(2 & 3)
	16TK5026	(1 & 4)
	16TK5027	(2 & 3)
Z – Cable Shift Allison 1000-2000	16TK4060-14-A	(1 & 4)
	16TK4061-23-A	(2 & 3)
<i>Kit includes shift cover, installation parts bag, & indicator light switch.</i>		
4 – Air Shift Allison 1000-2000	16TK4063-A	(1 & 4)
	16TK4064-A	(2 & 3)
<i>Kit includes shift cover, installation parts bag, & indicator light switch.</i>		
5 – Elect/Air Shift Allison 1000-2000	16TK4018-A	(1 & 4)
	16TK4019-A	(2 & 3)
<i>Kit includes shift cover, installation parts bag, & indicator light switch.</i>		
6 – Lectra Shift Allison 1000-2000	16TK4066-A	(1 & 4)
	16TK4067-A	(2 & 3)
<i>Kit includes shift cover, installation parts bag, wiring harness with relay, & indicator light switch.</i>		

TABLE 5
TG OUTPUT SHAFT OPTIONS

SHAFT TYPE
B – Standard Shaft 1¼" Round, 5/16" Keyway
C – 1410 Companion Flange (14TA3975)
F – SAE "A" 2-Bolt ¾" RD 3/16" Keyway (14TA4527)
G – Special 7/8" -13T Spline (14TA4528)
I – DIN 5462 36mm -8T Spline (14TA4422)
K – SAE "B" 2- & 4-Bolt 7/8" -13T Spline (14TA4531)
K"G" – SAE "B" 2- & 4-Bolt 7/8" -13T Greasable Opt (14TA4551)
L – SAE "B" 2- & 4-Bolt 7/8" RD ¼" Keyway (14TA4550)
M – SAE "A" 2- & 6-Bolt 5/8" -13T Spline (14MA4553)
N – 6-Bolt ¾" RD 3/16" Keyway (14TA4554)
P – SAE "BB" 2- & 4-Bolt 1" -15T Spline (14TA4532)
P"G" – SAE "BB" 2- & 4-Bolt 1" -15T Greasable Opt (14TA4552)
Q – SAE "A" 2-Bolt 7/8" -13T Spline (14TA4529)
R – SAE "A" 2-Bolt 5/8" -9T Spline (14TA4541)
S – SAE "B" 2-Bolt 7/8" -13T Spline (14TA4530)
T – SAE "A" 2-Bolt ¾" -11T Spline (14TA4533)
X – 1.3 -21T Spline
Z – SAE "B" 2- or 4-Bolt 1¼" -14T – Spline (14TA4423)
2 – DIN 100 Companion Flange (14TA3975)
6 – SAE "B" 2-Bolt 7/8" -13T Spline

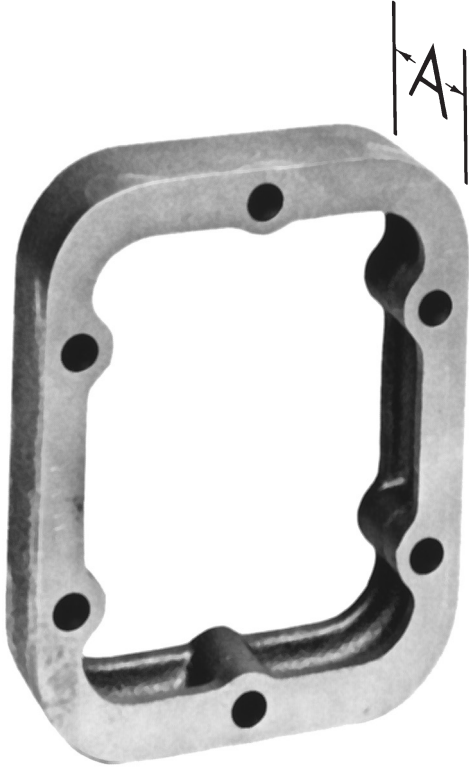
TABLE 6 TG SPECIAL FEATURE OPTIONS

OPTIONS	Assy.
X – None	
A – Reverse Shifter Mounting (Air, Electric/Air, or Lectra Shift only). Use cover kit from table 4 and kit #16TK3837	
E – U60 Input Gear , use gasket pack 52MK1001, attach 36M35665TC to visor decal	
F – Special Clearance Cap 15K35351	
G – Greaseable Shaft (see output shaft options above)	
H – High Torque (standard on 12, 13, 15, and 18 Ratios)	
I – Dual Terminal Indicator Switch 30M91113 N.O. (1 or 4 Assembly) 30M92247 N.C. (2 or 3 Assembly)	
J – High Torque – Pressure Lube (12, 13, 15, and 18 Ratios)	
M – Milled Idler Cap Install Clearance Cap Kit (15MK33977)	
P – Pressure Lubed – Install Kit (43MK3734)	
Q – High Torque with Milled Idler Cap Combine option "M" with option "H"	
S – Pulse Generator – Pressure Lube Combine option "U" and option "P"	
T – Pulse Generator – High Torque Combine option "U" and option "H"	
U – Pulse Generator. Change shift cover assembly to:	
Air Shift	
16MK3819-A	(1 & 4)
16MK3820-A	(2 & 3)
Cable Shift	
16MK3788-A	(3 & 3)
16MK3789-A	(1 & 4)
Lectra Shift	
16MK3867-A	(1 & 4)
16MK3868-A	(2 & 3)
This option includes the pulse generator.	
V – U60 Input Gear , use gasket pack 52MK1001. Install Clearance Cap Kit (15MK33977), and attach 3M35665TC to visor decal.	

SPACERS AND ADAPTER PLATES

FILLER BLOCKS (SPACERS) are required as called for in the TRANSMISSION APPLICATIONS, where it is necessary to use a spacer to adapt the power take-off to a particular transmission.

Two filler blocks (spacers) may be used in combination with one or more gaskets between the filler block surfaces.



In computing the total thickness of the filler block (spacer) and gasket combination, use a factor of .012" (compressed thickness of a 1/64" gasket 13M35092) for every 1/64" gasket required in installation.

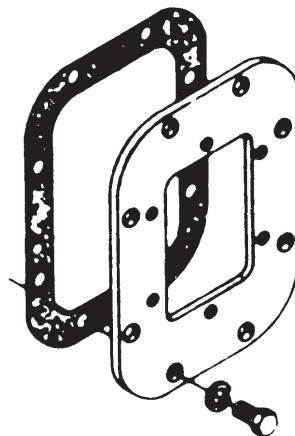
SAE 6-BOLT FILLER BLOCKS	
PART NUMBER	"A" THICKNESS
23M60032S	.032"
23M60062S	.062"
23M60093S	.093"
23M60125S	.125"
23M60140S	.140"
23M60165S	.165"
23M60187S	.187"
23M60200S	.200"
23M60240S	.240"
23M60270	.270"
23M60300	.300"
23M60350	.350"
23M60400	.400"
23M60450	.450"
23M60500	.500"
23M60550	.550"
23M60800	.800"
23M61000	1.000"
23M61500	1.500"
23M62000	2.000"

SAE 8-BOLT FILLER BLOCKS	
PART NUMBER	"A" THICKNESS
23M80032	.032"
23M80062	.062"
23M80165	.165"
23M80190	.190"
23M80248	.248"
23M80295	.295"
23M80375	.375"
23M80500	.500"
23M81200	1.200"
23M81350	1.350"

SAE 8-BOLT ADAPTER PLATES

SAE 8-BOLT ADAPTER PLATE. Used to convert an SAE 8-Bolt aperture to an SAE 6-Bolt aperture.

KIT NUMBER	"A" THICKNESS
29MK8375	.375"
29MK8460	.460"
29MK8248	.248"
29MK8460M (Metric Studs)	.460"
29MK8248M (Metric Studs)	.248"



GASKET KITS AND MOUNTING PARTS

Use the proper quantity of gaskets as SHIMS to provide the best running condition of the power take-off. If the installation is TOO TIGHT—add gaskets, if TOO LOOSE—remove gaskets.

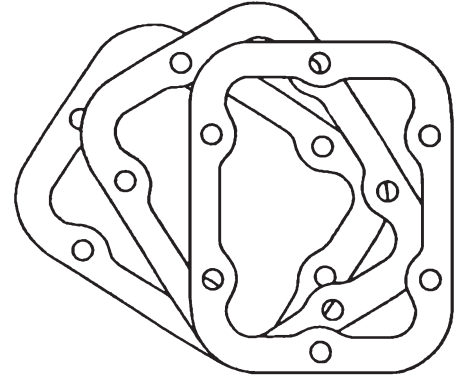
To facilitate handling, popular size gaskets are supplied in kits.

One or more gaskets (as required) must always be used between the metal surfaces of the power take-off, adapter gear assembly, adapter plate, and filler block or blocks.

The 13M13541 gasket is recommended for all Allison transmissions using U60 gear designators.

Refer to the PTO operator's manual, supplied with the PTO, for more detailed installation information.

Gaskets which are .010" in thickness generally affect backlash by .006". Gaskets which are .020" in thickness generally affect backlash by .012".



SAE 8-BOLT HOLE

GASKET KIT PART NUMBER	KIT CONSISTS OF GASKETS		
	QUANTITY	THICKNESS	PART NUMBER
13MK5701	25	.010"	13M35151
	25	.020"	13M35152
13MK5702	10	.010"	13M35151
13MK5707	10	.020"	13M35152
13MK5708	100	.010"	13M35151
13MK5709	100	.020"	13M35152

SAE 6-BOLT HOLE

GASKET KIT PART NUMBER	KIT CONSISTS OF GASKETS		
	QUANTITY	THICKNESS	PART NUMBER
13MK5703	100	.010"	13M35091
13MK5704	100	.020"	13M35092
13MK5705	50	.010"	13M35091
13MK5706	50	.020"	13M35092

STUD KIT SPECIFICATIONS

**All 6-Bolt Stud Kits Include Studs and
6 — 0.375-24 Hex Locking Nuts**

6-BOLT STUD KITS			
PART NUMBER	LENGTH	PART NUMBER	LENGTH
20MK6601	1.50"	20MK6613	3.00"
20MK6602	1.63"	20MK6615	3.25"
20MK6603	1.75"	20MK6616	3.38"
20MK6604	1.88"	20MK6617	3.50"
20MK6605	2.00"	20MK6621	4.00"
20MK6607	2.25"	20MK6623	4.25"
20MK6608	2.38"	20MK6625	4.50"
20MK6609	2.50"	20MK6627	4.75"
20MK6610	2.63"	20MK6629	5.00"
20MK6611	2.75"	20MK6631	5.25"
20MK6612	2.88"		

**All 8-Bolt Stud Kits Include Studs and
8 — 0.44-20 Hex Nuts, 8 — Lock Washers**

METRIC STUD KITS		8-BOLT STUD KITS	
PART NUMBER	LENGTH	PART NUMBER	LENGTH
6-BOLT - 10MM: 3/8" UNF		20MK8808	2.00"
20MKM602	48 mm	20MK8815	2.13"
20MKM603	50 mm	20MK8817	2.38"
20MKM604	53 mm	20MK8814	2.50"
8-BOLT - 12MM: 7/16" UNF		20MK8816	2.63"
20MKM800	45 mm	20MK8807	2.75"
20MKM801	50 mm	20MK8818	3.00"
20MKM802	55 mm	20MK8812	3.13"
20MKM804	65 mm	20MK8813	3.25"
20MKM806	75 mm		

STUD KIT SPECIFICATIONS

SH6 AND CS6 SERIES PTO STUD KITS							
THIS KIT (OLD KIT)	REPLACED BY (NEW KIT)	CONTAINS (2) STEP STUD	LENGTH	THIS KIT (OLD KIT)	REPLACED BY (NEW KIT)	CONTAINS (2) STEP STUD	LENGTH
20MKM602	20TK4359	20T37952	40mm	20MK6604	20TK4434	20T38576	1.88"
13MK5702	20TK4360	20T38391	45mm	20MK6605	20TK4435	20T38577	2.00"
13MK5707	20TK4418	20T37032	1.50"	20MK6607	20TK4436	20T37578	2.25"
13MK5708	20TK4433	20T38575	1.75"	20MK6615	20TK4437	20T38579	3.25"
				20MK6617	20TK4438	20T38580	3.50"

The stud kits used in the SH6 and CS6 Series PTOs were changed to include (2) step studs in place of (2) of the regular studs.

STUD AND CAP SCREW APPLICATION					
PTO SERIES	STUD OR CAP SCREW KIT	LENGTH	PTO SERIES	STUD OR CAP SCREW KIT	LENGTH
CS6B, CS6C	20TK6389	43mm	TG6B, TG6C	20MKM602	40mm
CS6B-A6707	20TK6390	53mm	TG6D, TG6S, TG6N-S71	20MK6700	1.50"
CS6D, CS6S, CS6N-S71	20TK4418	1.50"	TG6F	20TK4049	40mm
CS6B-I84	20TK6335	43mm	TG6N-I84	20TK4074	38mm
CS6N-I85	20MKM104	40mm	TG6N-I85	20MKM104	40mm
CS8B, CS8C	20MKM802	55mm	TG8B, TG8C	20MKM802	55mm
CS8D, CS8S	20MK8800	1.25**	TG8D, TG8S	20MK8801	1.38**
CS10	20TK6353	30mm	828B, 828C	20MKM802	55mm
A20	20TK6353	30mm	828D, 828S	20MK8815	2.13"
A30	20TK6353	30mm	FA62	20TK4070	25mm
RL6C	20MKM602	40mm	FA64	20TK4071	25mm
RL6D	20MK6601	1.50"	FR62/FR63	20TK4525	25mm
RL8B	20MKM800	45mm	FR67	20TK4542	25mm
RL8S	20MK8800	1.25**	8405A	20MK8800	1.25**
SH6B, SH6C	20TK4359	40mm	8405B	20MKM802	55mm
SH6D, SH6S	20TK4418	1.50"	FA6B-A67	20TK5283	25mm*
SH8B, SH8C	20MKM802	55mm	FA6B-I84	20TK5169	38mm
SH8D, SH8S	20MK8800	1.25**			

NOTE: *Capscrew Length

ADAPTER GEAR ASSEMBLIES

ADAPTERS:

The application pages have a box for the inclusion of an adapter which can be used to change the rotation of the PTO output shaft as shown on this particular application. The adapter shown relates to all the PTOs shown above it on that page. Adapters are available for only 6-Bolt type PTOs. Refer to the listed footnotes before specifying an adapter. These footnotes typically show changes that are required of the TG Series to make it mount properly to the adapter.

Example: The Allison 1000/2000 Application Page ALLI-09

1 FWD. 1 REV.										
ADAPTER TO CHANGE ROTATION		13, 16	40TA6830-2, 40TA6855-2				REFER TO ADAPTER GEAR ASSEMBLIES IN INDEX			

- The adapter to change rotation is 40TA6830-2 and 40TA6855-2

FOOTNOTES:

- 13 40TA6830-2 adapter uses metric PTO stud kit. Check for clearance to frame rail and other chassis components before using. 40TA6830-2 adapter uses metric PTO stud kit. Check for clearance to frame rail and other chassis components before using.
- 16 40TA6855-2 can be used with CS6S Series PTO only. Use standard stud kit (20TK4418) with this PTO. Check for clearance to frame rail and attached components. Spacer 23M60165S (included) mounts to transmission side.

- The footnote indicate that 40TA6830-2 uses a metric stud kit. Whereas, 40TA6855-2 uses a standard PTO stud kit. The footnote also informs you to check for clearance to frame rail and other chassis components before using.

ADAPTER GEAR ASSEMBLIES

FIGURE 1 SOLID BODY-SINGLE GEAR

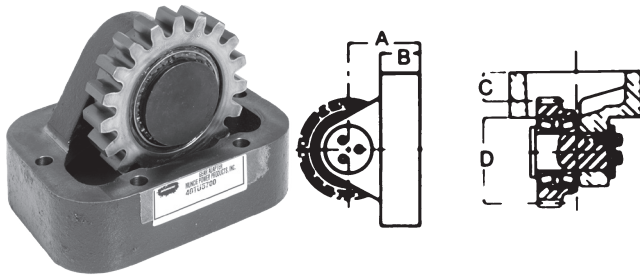


FIGURE 2 ANGULAR OFFSET

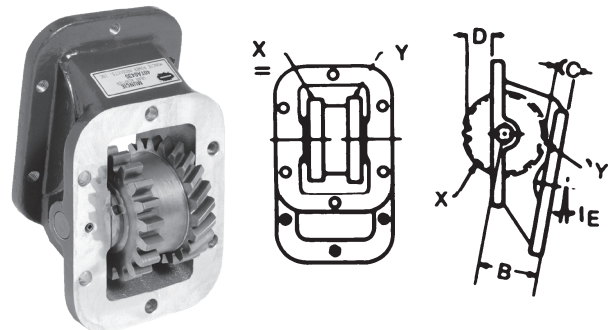


FIGURE 3 ANGULAR

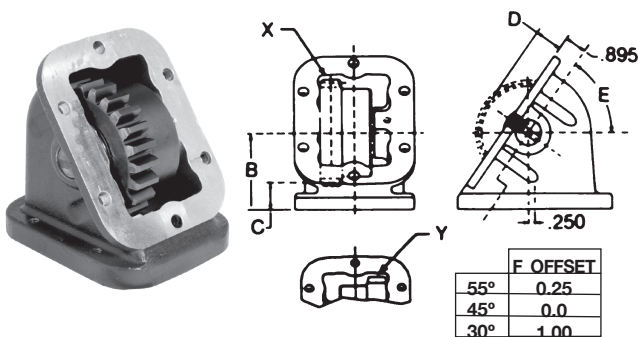
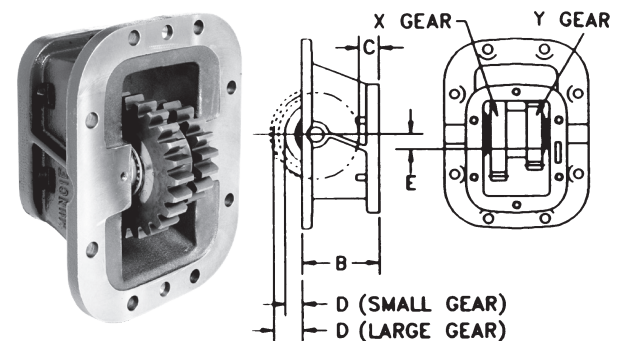


FIGURE 4 8-BOLT TO 6-BOLT



ADAPTER GEAR ASSEMBLIES

FIGURE 5 FLANGED BODY SINGLE GEAR

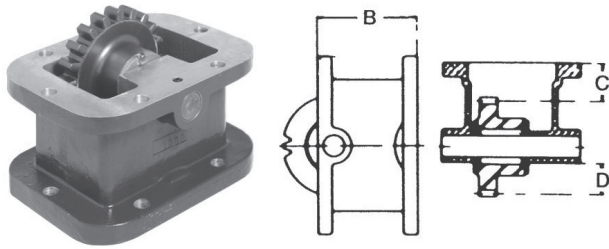


FIGURE 6 HORIZONTAL OFFSET

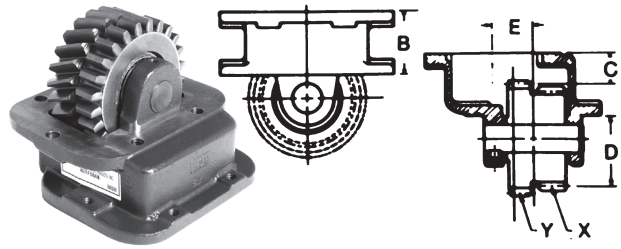


FIGURE 7 NISSAN ADAPTER

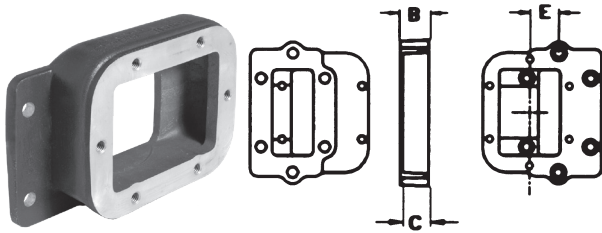


FIGURE 8 VERTICAL OFFSET

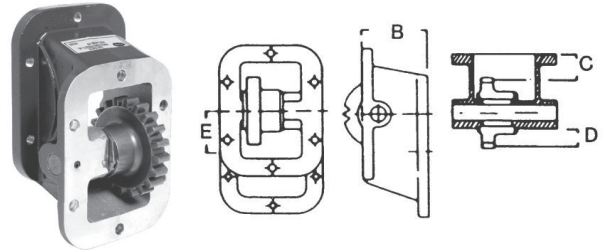


FIGURE 9 6-BOLT MACK ADAPTER

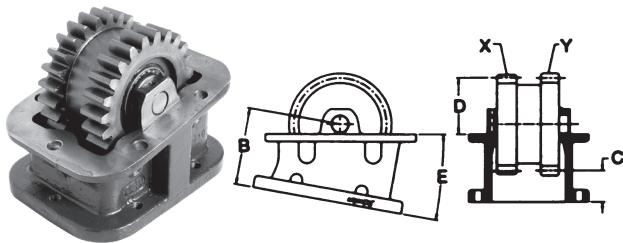
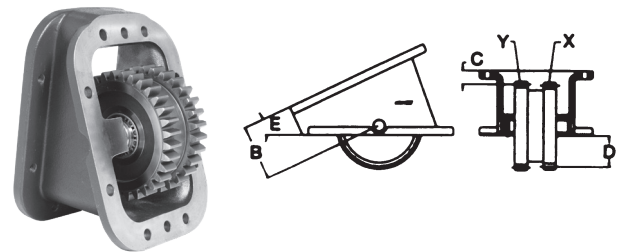


FIGURE 10 8-BOLT MACK ADAPTER



ADAPTER GEAR ASSEMBLIES DIMENSIONAL DATA

MODEL NO.	FIG.	FOOTNOTE	GEAR DATA		DIMENSIONS			
			APPL.	TEETH	A	B	C	D
40TU6800	1		U68	22	2.917 (74.1)	1.651 (41.9)	1.084 (27.5)	3.099 (78.7)
40TM6500	1	1	M65	24	2.917 (74.1)	1.651 (41.9)	1.065 (27.1)	3.118 (79.2)
40TA0541	5	3, 5	U68	20	—	3.315 (84.2)	1.085 (27.6)	5.046 (128.2)

continued on page 35

ADAPTER GEAR ASSEMBLIES DIMENSIONAL DATA *(continued from page 33)*

MODEL NO.	FIG.	FOOTNOTE	LOCA.	APPL.	TEETH	B	C	D	E
40TA0810	8	2, 3, 4, 5	—	U68	20	2.825 (71.8)	.642 (16.3)	1.148 (29.2)	1.750 (44.5)
40TI8410-1/-2	2	3, 4, 6	Y	I84	28	2.307 (58.6)	.653 (16.6)	1.136 (28.9)	10°
40TU6810-1/-2	2	2, 3, 4, 5, 6	X or Y	U68	20	2.307 (58.6)	.682 (17.3)	1.147 (29.1)	10°
40TZ9210-1/-2	2	3, 4, 5, 6	X or Y	Z92	22	2.307 (58.6)	.835 (21.2)	.954 (24.2)	10°
40TZ9968-1	2	3, 4, 5, 7	X	Z99	31	2.307 (58.6)	.682 (17.3)	1.253 (31.8)	10°
			Y	U68	20				
40TZ1068-2	2	3, 4, 5, 9	X or Y	A68	27	2.842 (72.2)	0.875 (22.2)	1.125 (28.6)	30°
40TU6830-1	2	3, 4	X	U68	23	2.83 (71.9)	0.914 (23.2)	1.088 (27.6)	30°
40TA6830-2	2	3, 4	Y	A68	27	2.842 (72.2)	0.875 (22.2)	1.12 (28.4)	30°
40TU6845-1	3	3, 4	X	U68	24	3.082 (78.3)	1.085 (27.6)	1.105 (28.1)	45°
40TA6855-1/2	3	3, 4	X	A68	28	3.034 (77.1)	0.995 (25.3)	1.144 (29.1)	55°
40TF6855-1	3	3, 4, 6	X	U68	24	3.071 (78.0)	1.072 (27.2)	1.395 (35.4) .812 (20.6)	55°
			Y	F68	25				
40TU6855-1	3	3, 4	X	U68	24	3.071 (78.0)	1.072 (27.2)	1.105 (28.1)	55°
40TU6855-2	3	3, 4	Y	U68	24	3.071 (78.0)	1.072 (27.2)	1.105 (28.1)	55°
40TU6886-1	4	3, 4	X	U68	25	3.76 (95.5)	1.027 (26.1)	1.395 (35.4) .812 (20.6)	.71 (18.0)
			Y	U68	18				
40TU6886-2	4	3, 4	X	U68	18	3.76 (95.5)	1.027 (26.1)	.812 (20.6) 1.395 (35.4)	.71 (18.0)
			Y	U68	25				
40TF6168	6	3	X	F61	19	2.235 (56.8)	1.085 (27.6)	2.630 (66.8)	1.435 (36.4)
			Y	U68	24				
40TF6668	6	3	X	F66	23	2.235 (56.8)	1.085 (27.6)	2.76 (70.1)	1.435 (36.4)
			Y	U68	24				
40TF8368	6	3	X	F83	26	2.235 (56.8)	1.085 (27.6)	2.571 (65.3)	1.435 (36.4)
			Y	U68	24				
40TS7168	6	3	X	S71	25	2.235 (56.8)	1.085 (27.6)	2.762 (70.2)	1.435 (36.4)
			Y	U68	24				
40TS7368	6	3	X	S73	24	2.235 (56.8)	1.085 (27.6)	2.715 (69.0)	1.435 (36.4)
			Y	U68	24				
29TK3863	7	3	—	—	—	1.430 (36.3)	1.085 (27.6)	—	1.500 (38.1)
29TK3954	7	3	—	—	—	1.983 (50.4)	1.085 (27.6)	—	0.416 (10.6)
40TM6616-1	9	3	X	M66	25	3.201 (81.3)	1.285 (32.6)	2.322 (59.0)	10°
			Y	S68	23				
40TM6628-2	10	3	X	M66	33	3.416 (86.8)	0.830 (21.1)	1.933 (49.1)	25°
			Y	U68	31				

Footnotes:

- | | |
|---|---|
| <p>1 Shipped with 23M60062S to be used on PTO side of adapter.</p> <p>2 Requires 23M60032S sold separately.</p> <p>3 Includes stud kit to mount adapter.</p> <p>4 The “C” dimension does not reflect the idler shaft offset. This adapter is designed for a standard mount PTO.</p> | <p>5 Derate PTO application by 30% when using this adapter. Do not use this adapter for continuous duty applications.</p> <p>6 Adapter is single gear design.</p> <p>7 Adapter is not designed for PTO use! Use to reposition Eaton Inertia Brake only!</p> |
|---|---|

PTO OUTPUT SHAFT RATINGS

DIRECT MOUNTED HYDRAULIC PUMP

Hydraulic pumps connected to PTOs by means of a spline hydraulic pump mounting are rated the same as the hydraulic pump shaft by the pump manufacturer. Muncie Power PTO output shafts are made to ANSI or SAE standards. Pump manufacturers may rate their input shafts based on displacement. Be sure to select a shaft size which is adequate to handle your needs. It is recommended that you use the largest shaft available for the PTO which would be compatible to your hydraulic pump.

SHAFT LIMITS:	
SHAFT	STL
5/8" -9T	≤ 5,490
3/4" -11T	≤ 10,114
7/8" -13T	≤ 16,500
1" -15T	≤ 25,650
1 1/4" -14T	≤ 33,300

The pump input shaft can withstand torque up to the designed shaft torque limitation (STL). This figure is based on multiplying the pump cu.in. displacement × the pump pressure. Tandem pumps are two pumps with individually calculated STLs added together not to exceed the limitation figure. Use this chart as a guide.

Check with your pump manufacturer. They will have their own ratings and the lower rating is to be used.

REMOTE DRIVE SHAFT

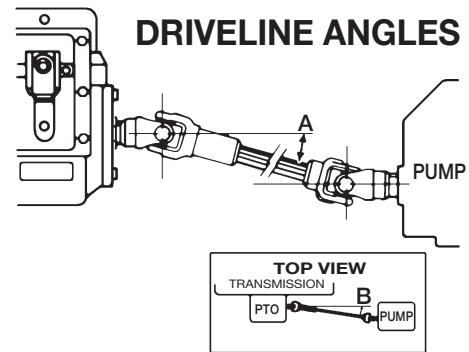
Refer to the table for the proper driveline series. Torque and horsepower are based on typical PTO driven applications and are intermittent ratings. Driveshaft applications are dependent on many factors including (but not limited to) torque, shaft length, shaft series, and speed.

Tubular drive shaft are recommended for all PTO driveshaft applications. High cyclic power operations require the use of the largest output shaft and Muncie Power recommends the splined output shafts with companion flanges with companion flanges for these applications.

SERIES	CROSS & BEARING	MAX. HP@ 1,000 RPM
1000	MK-2X	30
1280	5-200X	60
1310	5-153X	95
1410	5-160X	125*

NOTE:
*Limited By PTO

MAX. SPEED (RPM)	MAX. TJA "A"
3,500*	5°
3,000*	5°
2,500	7°
2,000	8°
1,500	11°
1,000	12°



NOTE:
* For speeds over 2,500 RPM contact Muncie Power for Approval.

For installations with angles in the top and side views use this formula to compute the true joint angle (TJA): $TJA = \sqrt{A^2 + B^2}$

Round, keyed output shafts are susceptible to failure by high cyclic loading. Applications requiring round, keyed PTO output shafts should use the "severe duty" rating shown on this chart.

TORQUE RATINGS FOR REMOTE SHAFTS

PTO SHAFT (Round, Keyed or External Spline)	DUTY CYCLE		
	INTERMITTENT (lb.ft.)	CONTINUOUS (lb.ft.)	SEVERE (lb.ft.)
7/8" w/1/4" Key	130	90	35
1" w/1/4" Key	130	90	60
1 1/4" w/ 5/16" Key	300	210	200
1.3" -21T Spl w/Comp Flg	300	210	200
1 1/2" -10T Spl w/Comp Flg	600	420	390

Detailed information is available for drivelines from Neapco and Spicer.

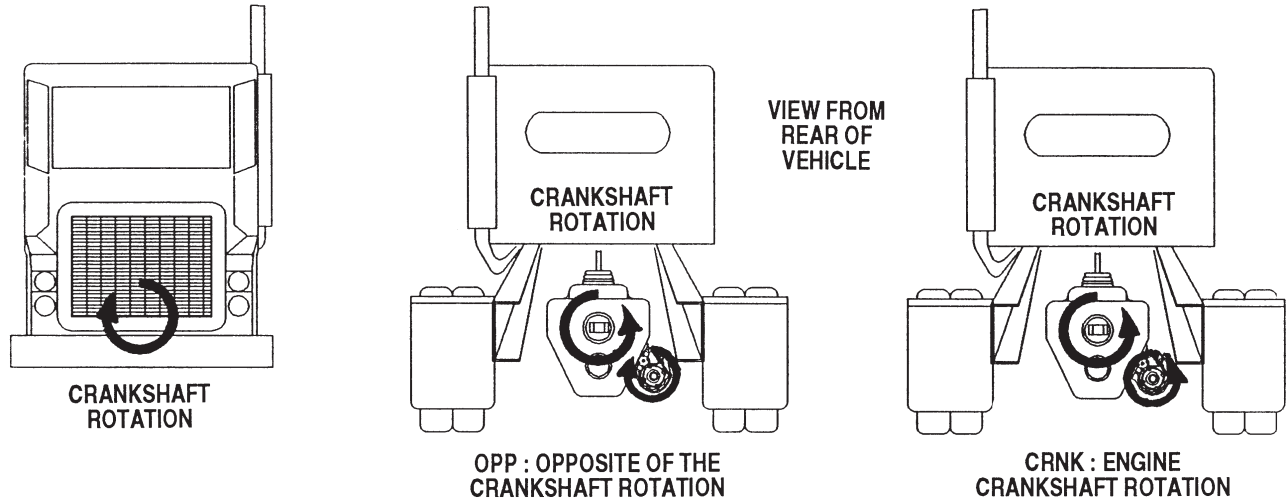
www.neapco.com
www.spicerparts.com

Maximum Drive Shaft Lengths (Tubular Shafts) - Length = CL to CL of joints

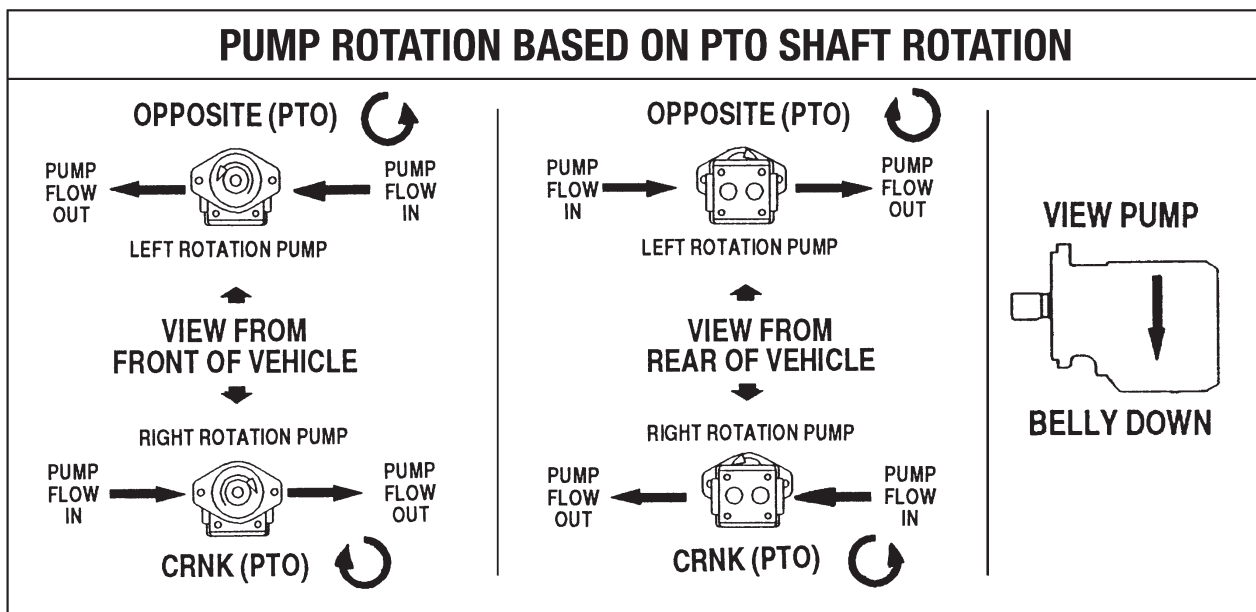
SERIES	TUBE	LENGTH	MAX. RPM
1000	1.75 × .065W	52"	2,500 RPM
1100	1.25 × .095	40"	2,500 RPM
1280/1310	2.5 × .083W	55"	2,500 RPM
1310	3 × .083W	76"	2,500 RPM

PTO SHAFT ROTATION

The PTO output shaft rotation as listed on the application page is shown as it relates to the vehicle crankshaft rotation. The rotation of the vehicle crankshaft is always clockwise when viewed from the front of the vehicle. The PTO output shaft designated as “Crnk” means that the shaft is turning the same rotation as the vehicle crankshaft. The PTO output shaft designated as “Opp” means that the shaft is turning the opposite rotation as the vehicle crankshaft. These two terms are shown in the figures below.



The rotation of the output shaft may be changed by the use of the appropriate gear adapter as shown on the previous pages. The rotation of the output shaft is important in specifying the proper driven component of the PTO. When using a gear type hydraulic pump, the rotation is often designated as “right hand” or “left hand”. The chart below shows which rotation hydraulic pump to use when the PTO application page designates a “Crnk” or “Opp” rotation PTO shaft. The chart also shows the proper side of the hydraulic pump for the inlet and the outlet hose connections. This is viewing the hydraulic pump with the pump’s body offset down (belly down).



PUMP SPECIFICATIONS BY SERIES

PUMP SERIES	FLOW*		DISPLACEMENT		MAX. PRESSURE**	MAX. RPM	MIN. RPM***
	GPM	LPM	CU.IN.	CM ³	PSI (BAR)		
PF4-160	1.6	(6)	.37	(6)	3,625 (250)	3,500	900
PF4-212	2.1	(8)	.49	(8)	3,625 (250)	3,500	900
PF4-264	2.6	(10)	.61	(10)	3,625 (250)	3,500	800
PF4-290	2.9	(11)	.67	(11)	3,625 (250)	3,500	800
PF4-368	3.7	(14)	.85	(14)	3,625 (250)	3,500	600
PF4-424	4.2	(16)	.98	(16)	3,625 (250)	3,500	600
PF4-502	5.0	(19)	1.16	(19)	3,625 (250)	2,750	600
PF4-606	6.1	(23)	1.40	(23)	3,400 (235)	2,350	600
PF4-714	7.1	(27)	1.65	(27)	2,750 (190)	2,350	600
PF4-818	8.1	(31)	1.89	(31)	2,400 (165)	2,000	600
PF4-870	8.7	(33)	2.01	(33)	2,250 (155)	2,000	600
Refer to Brochure MP08-06 for Dimensions and Specifications							
PH1-03	3	(10)	.62	(10)	3,500 (241)	3,500	1,000
PH1-05	5	(20)	1.24	(20)	3,500 (241)	3,500	800
PH1-07	7	(25)	1.55	(25)	3,500 (241)	3,250	800
PH1-08	8	(30)	1.86	(30)	3,250 (224)	3,000	800
PH1-09	9	(36)	2.17	(36)	2,900 (200)	3,000	800
PH1-11	11	(41)	2.48	(41)	2,500 (172)	3,000	800
Refer to Brochure MP15-17 for Dimensions and Specifications							
PK1-04	4	(16)	.24	(16)	3,000 (207)	3,600	600
PK1-06	6	(24)	1.47	(24)	3,000 (207)	3,600	600
PK1-08	8	(32)	1.97	(32)	3,000 (207)	3,000	600
PK1-11	11	(40)	2.46	(40)	3,000 (207)	3,000	600
PK1-13	13	(48)	2.96	(48)	3,000 (207)	2,500	600
PK1-15	15	(57)	3.45	(57)	2,500 (172)	2,500	600
PK1-17	17	(65)	3.94	(65)	2,500 (172)	2,500	600
Refer to Brochure MP15-12 for Dimensions and Specifications							
PL1-14	14	(52)	3.18	(52)	3,000 (207)	3,000	600
PL1-16	16	(63)	3.82	(63)	3,000 (207)	3,000	600
PL1-19	19	(73)	4.46	(73)	3,000 (207)	3,000	600
PL1-23	23	(85)	5.20	(85)	2,500 (172)	3,000	600
PL1-25	25	(93)	5.73	(93)	2,500 (172)	2,500	600
PL1-27	27	(104)	6.37	(104)	2,500 (172)	2,500	600
PL1-30	30	(115)	7.01	(115)	2,000 (138)	2,500	600
Refer to Brochure MP15-11 for Dimensions and Specifications							
W06	6	(23)	1.45	(23.9)	4,350 (300)	3,600	800
W08	8	(30)	1.96	(32.2)	4,350 (300)	3,600	600
W11	11	(42)	2.42	(39.7)	4,350 (300)	3,250	600
W13	13	(49)	2.92	(47.9)	4,000 (275)	3,000	600
W15	15	(57)	3.46	(56.8)	3,750 (260)	2,750	600
W17	17	(64)	3.96	(65.0)	3,500 (240)	2,500	600
W19	19	(72)	4.37	(71.6)	3,250 (225)	2,500	600
Refer to Brochure MP15-13 for Dimensions and Specifications							

PUMP SERIES	FLOW*		DISPLACEMENT		MAX. PRESSURE**	MAX. RPM	MIN. RPM***
	GPM	LPM	CU.IN.	CM ³	PSI (BAR)		
X14	14	(53)	3.18	(52.1)	4,350 (300)	3,000	800
X16	16	(60)	3.83	(62.9)	4,350 (300)	3,000	600
X19	19	(72)	4.44	(72.8)	3,750 (260)	3,000	600
X23	23	(87)	5.20	(85.3)	3,500 (240)	2,750	600
X25	25	(95)	5.69	(93.4)	3,250 (225)	2,750	600
X27	27	(102)	6.35	(104)	3,000 (210)	2,500	600
X30	30	(114)	7.01	(115)	2,500 (190)	2,500	600
X33	33	(125)	7.78	(128)	2,500 (190)	2,500	600
X36	36	(136)	8.43	(138)	2,250 (155)	2,250	600
Refer to Brochure MP15-14 for Dimensions and Specifications							
MLSM-27	27	(102)	6.10	(102)	3,000 (207)	2,500	800
MLSM-31	31	(117)	7.11	(117)	3,000 (207)	2,500	800
MLSM-35	35	(132)	8.20	(132)	2,750 (190)	2,400	800
MLSM-40	40	(151)	9.27	(151)	2,750 (190)	2,300	800
MLSM-44	44	(166)	10.25	(166)	2,500 (170)	2,200	800
Refer to Brochure MP15-37 for Dimensions and Specifications							
Dump Pumps					**		
S3LD1-06	6	(24)	1.47	(24)	2,500 (172)	2,500	800
S3LD1-11	11	(40)	2.46	(40)	2,500 (172)	2,500	800
S3LD1-15	15	(57)	3.45	(57)	2,500 (172)	2,500	800
E(H)3XL1-23	23	(87)	5.20	(85)	2,500 (172)	2,500	800
E(H)3XL1-27	27	(102)	6.37	(104)	2,500 (172)	2,500	800
Refer to Brochures MP15-10 and MP15-09 for Dimensions and Specifications							

Notes:

Pumps are cast iron, three piece construction, with heavy duty roller or sleeve bearings, and pressure balanced wear plates. Call Muncie Power Products for detailed specifications or application assistance.

* Theoretical Flow @ 1,000 RPM.

** Intermittent Cycles Only.

*** Higher RPMs are generally recommended for continuous operation.
To calculate torque requirement, use formula: $T = CID \times PSI \div 75.53$

