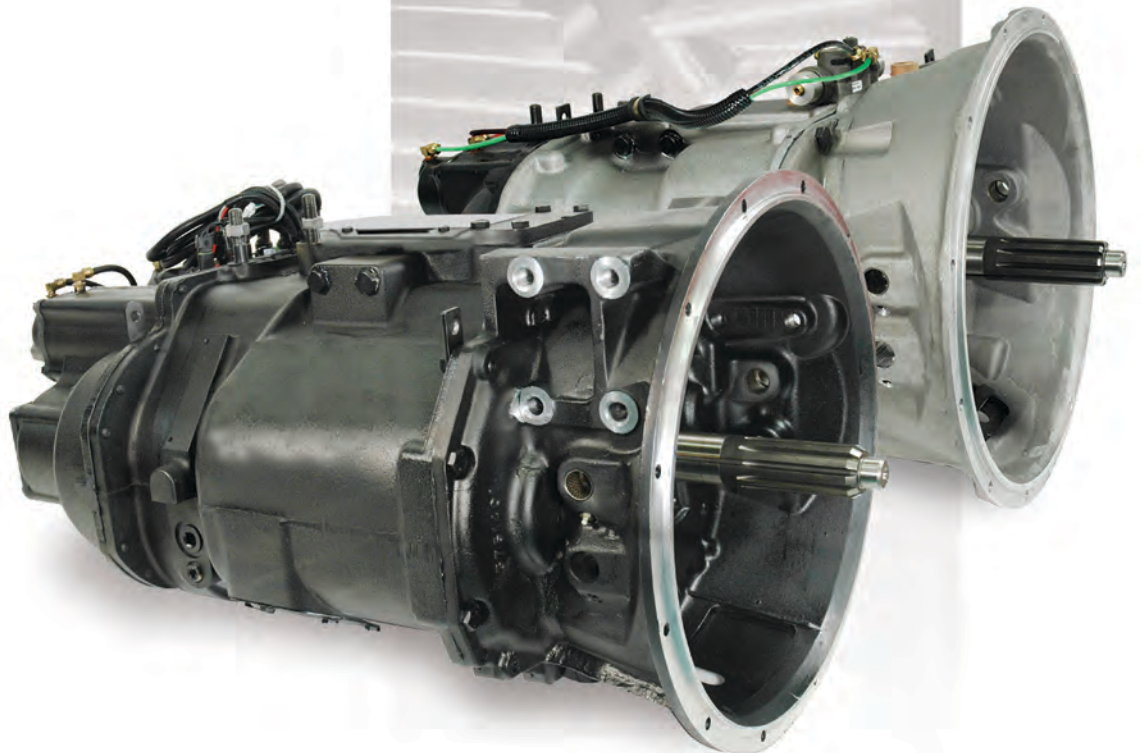


TREMEC[®]

TRANSMISSIONS

MEDIUM & HEAVY DUTY

CONDENSED
SPECIFICATIONS
HANDBOOK



About TREMEC

TREMEC designs, develops, manufactures, and markets transmissions, and related products globally for a wide variety of vehicles from high-performance passenger cars and light-duty trucks through Class 8 commercial vehicles.

This specification guide is for medium- to heavy-duty vehicle transmissions. In it, you'll find innovative products finely engineered and manufactured to optimize your vehicles' operation and your drivers' safety and job satisfaction. The product lines are:

PRO-SHIFT™ Transmissions...

for medium-duty, heavy-duty, and vocational applications; which offer an exceptionally wide range of high torque-to-weight ratios.

EASY-SHIFT™ Transmissions...

for medium-duty trucks, quietly provide smooth, positive gear engagement with an even shift feel, in 5- and 7-speed synchronized configurations.

Nomenclature

Type	Model Information	Torque Capacity	Number of forward speed gears	Ratio
L = Lite LL = Lite II	ES = Easy-Shift Synchronized Series PS = Pro-Shift Series	x 10 lb. ft. (125=1250 lb. ft.)	10	S
L L	P S	O	1 2 5 -	
	Gearing O = Overdrive None = Direct			

OPTILUBE™ – Optimum Lubrication System



The revolutionary, patented OPTILUBE™ System uses an internal oil pump and a simple, effortless delivery system to spray lubricant continuously and directly onto all critical gear sets and bearings. TREMEC offers an advanced Optilube System on all 9-speed, 10-speed, and 18-speed transmissions.

General Specifications

AVAILABILITY	Standard on all TREMEC 9- and 10-speed transmissions, including Pro-Shift, Vocational, and TREMEC Lite
LUBE TYPE	Mineral or synthetic oil SAE 50 wt.
LUBE CAPACITY	18 pints (9-10-speed transmissions only to the Spicer Light and Lite II weight references at the bottom) 29.6 pints (18 speed)

The Optilube System is superior to systems that merely pump transmission lubricant through a heat exchanger. The Optilube System directs lubricant to critical areas to reduce transmission friction and lubricant temperature for increased transmission efficiency, fuel economy, and longevity.

- No cooler required on 9- and 10-speed units (required on 18-speed)
- Cooler running, longer lasting system—runs up to 50°F cooler
- Reduced lubricant requirement—uses 9 pints less lubricant for

reduced cost and weight (on 9- and 10-speed transmissions)

- No external oil pump required
- Tamperproof—internal oil pump eliminates the possibility of damage by vandalism or exposure to the elements
- Superior tolerance to adverse conditions—the Optilube System can tolerate a lower oil level than conventional lube systems
- Better efficiency—continuous lubrication of critical parts means less friction, more efficient power, and better mileage

TREMEC LITE™ Transmissions



TREMEC Lite™ transmissions are the lightest heavy-duty transmissions on the market. These 9- and 10-speed transmissions have heat-treated aluminum alloy cases to allow increased payload capacity. The TREMEC Lite and Lite II transmissions offer substantial weight savings (up to 150 lbs), so you can haul more payload and make more profit on every run.

- Cool running Optilube System uses 9 pints less lube for additional weight savings
- Highest torque-to-weight ratios in the industry
- Enhanced operating efficiency
- TREMEC Lite offers weight savings—up to 72 lbs.
- TREMEC Lite II offers weight—up to 150 lbs.

General Notes

Weight	Listed weights are without lubricant, yokes, and controls. Weights include clutch housing.
Length	Listed lengths are from the clutch housing mounting face to the washer seat face.
Lube Capacity	Lube capacities are approximate, depending on inclination of transmission. Always fill transmissions to level of fill hole.
OPTILUBE™	All 9-Speeds, 10-Speeds, and 18-Speeds are equipped with Optilube Lubrication System.

PRO-SHIFT™ Dual Counter Shaft Transmissions



Pro-Shift Seven Speeds

Model No.	Weight (lbs/kg)*	Clutch Housing	Lube Cap. (pts/l)	Length (in/mm)	PTO Speed (% of Engine)
PS110-7A	732/332	Iron SAE #1 or #2	48/22.6	30.75/781	42
PS145-7A					35
PS110-7B					35

Pro-Shift Nine Speeds

Model No.	Weight (lbs/kg)*	Clutch Housing	Lube Cap. (pts/l)	Length (in/mm)	PTO Speed (% of Engine)
PS95-9A	625/284	Iron SAE #1 or #2	18/8.5	31/787	61.5
PS125-9A	635/288				
PS140-9A					
PSO125-9A	635/288	Iron SAE #1 or #2	18/8.5	31/787	82.6
PSO140-9A					
PSO150-9A					
PS9-VPD					
PSO9-VPD					

Pro-Shift TREMEC Lite Nine Speeds

Model No.	Weight (lbs/kg)*	Clutch Housing	Lube Cap. (pts/l)	Length (in/mm)	PTO Speed (% of Engine)
LPS125-9A	579/263	Aluminum SAE #1	18/8.5	31/787	61.5
LPS140-9A					
LPSO125-9A	579/263	Aluminum SAE #1	18/8.5	31/787	82.6
LPSO140-9A					
LPSO150-9A					
LPS9-VPD					
LPSO9-VPD					

*Weight includes clutch housing.

- Heavy-duty torque capacities that work with new, higher torque diesels
- Driver friendly, no-repeat shift patterns
- Low first and reverse gears for smooth startability and controlled backing
- Heavy-duty rolled spline mainshaft for longer life and increased output strength



Pro-Shift™ 9- and 10-speed transmissions, are designed for over-the-road and inner-city applications, TREMEC offers many configurations of the Pro-Shift 9 and 10 speeds, including a complete line of direct drive and over-drive configurations to fit a variety of applications.

For weight sensitive or bulk hauling applications, consider the TREMEC Lite™ and TREMEC Lite II options. They reduce transmission weight, allowing you to haul more payload. These transmissions have heat treated aluminum alloy cases to reduce weight while maintaining structural strength.

For on/off-highway applications, the TREMEC Vocational 10-speeds were built with startability, gradability, easy shifting, durability, final drive ratios, and sensible gear splits in mind. Vocational 10-speeds are available in models to match most application conditions and engine specifications.

PRO-SHIFT™ Dual Counter Shaft Transmissions

Pro-Shift Seven Speeds (cont'd)

Model No.	Torque Cap.(lbs-ft)	Overall Ratio	R1	1st	%	2nd	%	3rd	%	4th	%	5th	%	6th	%	7th
PS110-7A	1,100	10.13	10.13	10.13	69	5.99	68	3.56	39	2.57	40	1.84	38	1.33	33	1.00
PS145-7A	1,450															
PS110-7B	1,100	12.27	12.27	12.27	75	7.00	68	4.13	63	2.54	38	1.84	38	1.33	33	1.00

Pro-Shift Nine Speeds (cont'd)

Model No.	Torque Cap.(lbs-ft)	Overall Ratio	R1	1st	%	2nd	%	3rd	%	4th	%	5th	%	6th	%	7th	%	8th	%	9th
PS95-9A	950	13.95	14.30	13.95	54	9.05	39	6.51	36	4.77	34	3.55	39	2.55	39	1.83	37	1.34	34	1.00
PS125-9A	1,250																			
PS140-9A	1,400																			
PSO125-9A	1,250	13.95	10.65	10.40	54	6.74	39	4.85	37	3.55	34	2.65	40	1.89	38	1.37	37	1.00	35	0.74
PSO140-9A	1,400																			
PSO150-9A	1,500																			
PS9-VPD	1,450																			
PSO9-VPD	1,550																			

Pro-Shift TREMEC Lite Nine Speeds (cont'd)

Model No.	Torque Cap.(lbs-ft)	Overall Ratio	R1	1st	%	2nd	%	3rd	%	4th	%	5th	%	6th	%	7th	%	8th	%	9th
LPS125-9A	1,250	13.95	14.30	13.95	54	9.05	39	6.51	36	4.77	34	3.55	39	2.55	39	1.83	37	1.34	34	1.00
LPS140-9A	1,400																			
LPSO125-9A	1,250	13.95	10.65	10.40	54	6.74	39	4.85	37	3.55	34	2.65	40	1.89	38	1.37	37	1.00	35	0.74
LPSO140-9A	1,400																			
LPSO150-9A	1,500																			
LPS9-VPD	1,450																			
LPSO9-VPD	1,550																			



Proven in millions of miles of operation, all of TRECMEC Pro-Shift 9- and 10-speeds feature:

- OPTILUBE™ standard
- Exceptionally smooth shifting
- Driver friendly shift pattern
- Highest torque-to-weight ratio in the industry
- Wide choice of PTO applications
- Quiet operation improves driver comfort
- Deep first and reverse gears for excellent maneuverability
- Low cost of ownership and purchase throughout entire service life

Pro-Shift Ten Speeds

Model No.	Weight (lbs/kg)*	Clutch Housing	Lube Cap. (pts/l)	Length (in/mm)	PTO Speed (% of Engine)
PS100-10D	626/284	Iron SAE #1 or #2	18/8.5	31/787	66.7
PS125-10D	636/289				
PS135-10D					
PS145-10D					
PSO100-10S	631/286	Iron SAE #1 or #2	18/8.5	31/787	85
PSO125-10S	641/291				
PSO140-10S					
PSO150-10S					
PSO165-10S					
PSO10-VPD					

Pro-Shift TRECMEC Lite Ten Speeds

Model No.	Weight (lbs/kg)*	Clutch Housing	Lube Cap. (pts/l)	Length (in/mm)	PTO Speed (% of Engine)
LPS125-10D	580/263	Aluminum SAE #1	18/8.5	31/787	66.7
LPS135-10D					
LPS145-10D					
LPSO125-10S	585/266	Aluminum SAE #1	18/8.5	31/787	85
LPSO140-10S					
LPSO150-10S					
LPSO165-10S					
LPSO10-VPD					

Pro-Shift TRECMEC Lite II Ten Speeds

Model No.	Weight (lbs/kg)*	Clutch Housing	Lube Cap. (pts/l)	Length (in/mm)	PTO Speed (% of Engine)
LLPS125-10D	512/232	Aluminum SAE #1	18/8.5	31/787	66.7
LLPS135-10D					
LLPS145-10D					
LLPSO125-10S	512/232	Aluminum SAE #1	18/8.5	31/787	85
LLPSO140-10S					
LLPSO150-10S					
LLPSO165-10S					
LLPSO10-VPD					

Pro-Shift Vocational Ten Speeds

Model No.	Weight (lbs/kg)*	Clutch Housing	Lube Cap. (pts/l)	Length (in/mm)	PTO Speed (% of Engine)
PS86-10V	633/287	SAE #1 or #2	8.5/18	31/787	60.5
PSO115-10V	643/292	SAE #1 or #2	8.5/18	31/787	85
PSO125-10V					
PSO145-10V					

*Weight includes clutch housing.

Pro-Shift Ten Speeds (cont'd)

Model No.	Torque Cap. (lbs-ft)	Overall Ratio	R1	1st %	2nd %	3rd %	4th %	5th %	6th %	7th %	8th %	9th %	10th %									
PS100-10D	1,000	14.95	16.71	14.95	36	11.01	38	7.96	33	5.98	33	4.50	36	3.32	36	2.45	38	1.77	33	1.33	33	1.00
PS125-10D	1,250																					
PS135-10D	1,350																					
PS145-10D	1,450																					
PSO100-10S	1,000	16.74	14.02	12.54	36	9.24	38	6.68	39	4.80	33	3.60	38	2.61	36	1.92	38	1.39	39	1.00	33	0.75
PSO125-10S	1,250																					
PSO140-10S	1,400																					
PSO150-10S	1,500																					
PSO165-10S	1,650																					
PSO10-VPD	1,700																					

Pro-Shift TRECMEC Lite Ten Speeds (cont'd)

Model No.	Torque Cap. (lbs-ft)	Overall Ratio	R1	1st %	2nd %	3rd %	4th %	5th %	6th %	7th %	8th %	9th %	10th %									
LPS125-10D	1,250	14.95	16.71	14.95	36	11.01	38	7.96	33	5.98	33	4.50	36	3.32	36	2.45	38	1.77	33	1.33	33	1.00
LPS135-10D	1,350																					
LPS145-10D	1,450																					
LPSO125-10S	1,250	16.72	14.02	12.54	36	9.24	38	6.68	39	4.80	33	3.60	38	2.61	36	1.92	38	1.39	39	1.00	33	.75
LPSO140-10S	1,400																					
LPSO150-10S	1,500																					
LPSO165-10S	1,650																					
LPSO10-VPD	1,700																					

Pro-Shift TRECMEC Lite II Ten Speeds (cont'd)

Model No.	Torque Cap. (lbs-ft)	Overall Ratio	R1	1st %	2nd %	3rd %	4th %	5th %	6th %	7th %	8th %	9th %	10th %									
LLPS125-10D	1,250	14.95	16.71	14.95	36	11.01	38	7.96	33	5.98	33	4.50	36	3.32	36	2.45	38	1.77	33	1.33	33	1.0
LLPS135-10D	1,350																					
LLPS145-10D	1,450																					
LLPSO125-10S	1,250	16.7	14.02	12.54	36	9.24	38	6.68	39	4.80	33	3.60	38	2.61	36	1.92	1	1.90	90	1.00	33	0.75
LLPSO140-10S	1,400																					
LLPSO150-10S	1,500																					
LLPSO165-10S	1,650																					
LLPSO10-VPD	1,700																					

Pro-Shift Vocational Ten Speeds (cont'd)

Model No.	Torque Cap. (lbs-ft)	Overall Ratio	R1	1st %	2nd %	3rd %	4th %	5th %	6th %	7th %	8th %	9th %	10th %									
PS86-10V	860	19.02	21.27	19.02	36	14.02	38	10.13	39	7.28	40	5.20	42	3.66	36	2.70	38	1.95	39	1.40	40	1.00
PSO115-10V	1,150	19.02	15.19	13.59	36	10.01	38	7.24	39	5.20	40	3.71	42	2.61	36	1.92	38	1.39	39	1.00	41	0.71
PSO125-10V	1,250																					
PSO145-10V	1,450																					



Pro-Shift Thirteen Speeds

Model No.	Weight (lbs/kg)*	Clutch Housing	Lube Cap. (pts/l)	Length (in/mm)	PTO Speed (% of Engine)
PSDO145-13A	794/360	Aluminum	29.5/13.9	37.7/958	70
PSDO165-13A					
PSDO185-13A					
PSDO205-13A					

TREMEC Pro-Shift™ 13- and 18-speed transmissions, were specifically developed to handle changing application needs. All models feature a deep starting gear ratio to get you moving with a full load and double overdrive to enhance top-end speed and fuel economy.

- Wide ratio coverage with close and evenly-spaced steps
- Superior startability / gradeability
- Double overdrive for improved fuel economy
- Range synchronizer for fast smooth pneumatic shifts
- Isolated shift lever reduces noise / vibration
- Cooler operating temperature with OPTI-LUBE design
- Curvic clutch collar design eliminates expensive synchronizers and contributes to greater reliability and longer life

Pro-Shift Eighteen Speeds

Model No.	Weight (lbs/kg)*	Clutch Housing	Lube Cap. (pts/l)	Length (in/mm)	PTO Speed (% of Engine)
PSDO165-18	794/360	Aluminum	29.5/13.9	37.7/958	70
PSDO185-18					
PSDO205-18					

Pro-Shift Thirteen Speeds (cont'd)

Model No.	Torque Cap. (lbs-ft)	Overall Ratio	R1	R2	1st	%	2nd	%	3rd	%	4th	%	5th	%	6th	%
PSDO145-13A	1,450	17.47	13.46	11.41	12.44	40	8.91	41	6.33	39	4.54	41	3.22	39	2.32	18
PSDO165-13A	1,650															
PSDO185-13A	1,850															
PSDO205-13A	2,050															

7th	%	8th	%	9th	%	10th	%	11th	%	12th	%	13th
1.96	19	1.65	19	1.39	18	1.18	19	1.00	19	0.84	18	0.71

Pro-Shift Eighteen Speeds (cont'd)

Model No.	Torque Cap. (lbs-ft)	Overall Ratio	R1	R2	R3	R4	1st	%	2nd	%	3rd	%	4th	%	5th	%	6th	%
PSDO165-18	1,650	21.27	15.64	13.03	3.72	3.1	14.89	20	12.41	19	10.4	20	8.66	18	7.32	20	6.09	21
PSDO185-18	1,850																	
PSDO205-18	2,050																	

7th	%	8th	%	9th	%	10th	%	11th	%	12th	%	13th	%	14th	%	15th	%	16th	%	17th	%	18th
5.05	20	4.21	19	3.54	20	2.95	19	2.47	20	2.06	18	1.74	20	1.45	21	1.20	20	1.00	19	0.84	20	0.7

EASY-SHIFT™ Series Synchronized Transmissions



Easy-Shift Five Speeds

Model No.	Weight (lbs/kg)*	Clutch Housing	Lube Cap. (pts/l)	Length (in/mm)	PTO Speed (% of Engine)
ES46-5A	325/147	SAE #2	12/5.7	27.05/687	49
ES56-5A					
ES62-5A	361/164	SAE #2	17/8.0	24.7/627	49
ES62-5D					
ES67-5A					
ES67-5D					
ES70-5A	438/199	SAE #2	18/8.5	29.3/744	52
ES70-5D					

Easy-Shift™ 5- to 7-speed transmissions, from TREMEC, are designed to be driver productivity tools. Easy-Shift 5-speeds are designed to handle the high-torque, medium-duty diesel engines used in today's toughest mid-range truck applications. Combined with a single-speed axle, this is an ideal transmission for general purpose, city, and highway delivery vehicles. The Easy-Shift 7-speed, with its broad range of application, becomes the perfect alternative to a 5-speed/2 axle combination.

- Gimbal tower lever assembly for a tighter shift pattern
- Taper Lok shift collars and synchronizers for smooth shifting
- New improved shift rails and forks are designed for longer life

Easy-Shift Five Speeds

Model No.	Torque Cap. (lbs-ft)	Overall Ratio	R1	1st	%	2nd	%	3rd	%	4th	%	5th
ES46-5A	460	7.16	6.75	7.16	84	3.89	79	2.17	54	1.41	41	1.00
ES56-5A	560	7.16	6.75	7.16	84	3.89	79	2.17	54	1.41	41	1.00
ES62-5A	620	7.17	7.17	7.17	85	3.88	62	2.39	65	1.45	45	1.00
ES62-5D	620	7.17	7.17	7.17	85	3.88	84	2.11	64	1.29	29	1.00
ES67-5A	670	7.17	7.17	7.17	85	3.88	62	2.39	65	1.45	45	1.00
ES67-5D	670	7.17	7.17	7.17	85	3.88	84	2.11	64	1.29	29	1.00
ES70-5A	700	7.28	7.28	7.28	78	4.09	70	2.41	67	1.44	44	1.00
ES70-5D	700	7.28	7.28	7.28	78	4.09	79	2.28	78	1.28	28	1.00

Easy-Shift Seven Speeds

Model No.	Weight (lbs/kg)*	Clutch Housing	Lube Cap. (pts/l)	Length (in/mm)	PTO Speed (% of Engine)
ES56-7B	454/206	SAE #2	22/10.4	35/889	49
ESO66-7B	454/206	SAE #2	22/10.4	35/889	66

Easy-Shift Seven Speeds

Model No.	Torque Cap. (lbs-ft)	Overall Ratio	R1	1st	%	2nd	%	3rd	%	4th	%	5th	%	6th	%	7th
ES56-7B	560	10.09	8.99	10.09	69	5.98	61	3.72	45	2.56	41	1.81	34	1.35	35	1.00
ESO66-7B	660	10.11	6.66	7.48	69	4.43	61	2.76	45	1.90	42	1.34	34	1	35	0.74

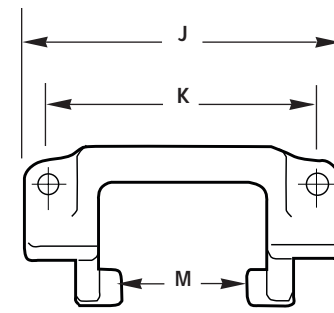
*Weight includes clutch housing.



OptiRail™ Optimum Shift Mechanism

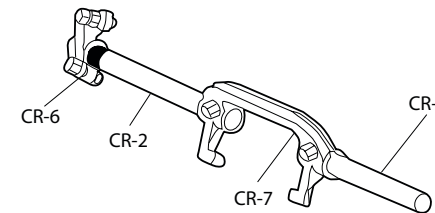
TREMEC Easy-Shift transmissions come equipped with TREMEC's patented OptiRail shift rail system. This system completely eliminates the use of fasteners to promote dramatically enhanced durability and improved shift quality. With OptiRail, stress is distributed evenly across the shift mechanism so there is no misalignment under load; resulting in smooth, low-effort shifts with far less potential for failure than any of the competition.

Clutch Release Components

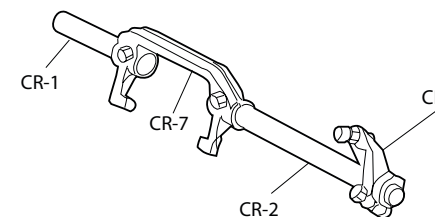


CR-7 Clutch Release Yokes*

Type	Item #	Forging #	Width (J)	Bolt CL (K)	Inside Ear (M)	Note
Pull	105C-137	F105C138	8.000	6.500	4.895	
Pull	105C-143	F105C141	8.000	6.500	4.895	Extended Pivot Point (1.45 from C/L)
Pull	105C-64	F105C64	8.000	6.500	4.895	Clutch Release Pads - 30 Degree Offset
Push	105C-117	F105C118	8.375	7.000	4.885	Machined washer surface on yoke front
Push	105C-124	F105C125	3.750	2.125	2.885	
Push	105C-130	F105C94	3.750	2.125	2.885	
Push	105C-132	F105C118	8.375	7.000	4.885	Machined washer surface on yoke rear (for clearance)
Push	85-509-3	F105C118	8.375	7.000	4.885	Same as 105C-117, except contains spring holes in lug



Pedal Adjusting Arm Right Side -310473X



Pedal Adjusting Arm Left Side-310233X

CR-1 Short Release Shaft

Type	Length	Item #
RS-1	4.812	106C-1278
RS-1	5.750	106C-1185
RS-1	5.750	62-510-22
RS-1	6.000	80-510-3
RS-1	6.125	106C-1142
RS-1	6.500	106C-1498
RS-5	10.438	106C-636
RS-5	11.375	106C-1515
RS-5	14.000	106C-438

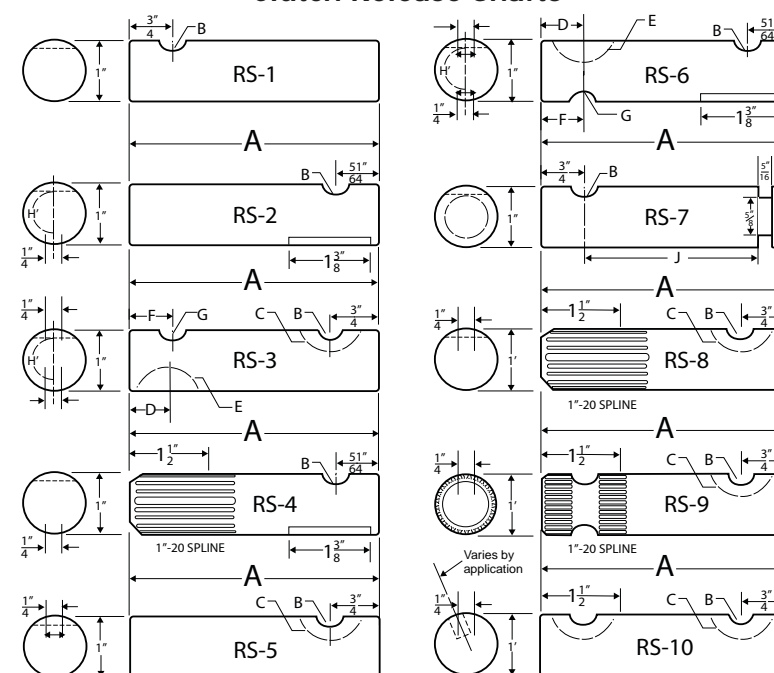
CR-6 Pedal Adjusting Arm Kit

Item #	Note
310233X	Left Side Mtg
310473X	Right Side Mtg
310873X	Lever Type 7.25 LH or RH

Splined Thru Shaft (used with Push Type Clutch)

Length	Item #
19.125	106C-1566
19.313	97-510-2
19.500	106C-1578

Clutch Release Shafts



To Order Clutch Release Shafts

1. Select Type from illustrations (left)
2. Determine lengths "A", "D" & "J"

In the tables above, only the more widely used Clutch Release Shafts are listed.

In the illustrations (left): Dimension "C" with a 0.250" Key Slot for 1-30 Round Key.

Dimension "B" with a 0.218" Notch for 330231 Screw.

* CLUTCH RELEASE YOKE ATTACHING PARTS — use one KEY 10-30, two SCREWS 330231, and two LOCK WASHERS 500356-12.

Are the parts you need not listed?
Call 1-800-401-9866.

SUPPORTED BY EXCELLENT SERVICE

Cutting-edge technology, innovative products, and world-class manufacturing—just a few of the things that reflect TREMEC's commitment to excellence in industry leading transmission technology. But our commitment to excellence doesn't stop there.

For more information on TREMEC products, please call 1-800-401-9866 or visit our website at www.TREMEC.com.



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A  Group Company