

## INSTALLATION INSTRUCTIONS

Thank you for purchasing a Quarter Master clutch. Please take a few minutes to read through these instructions before you install your new Quarter Master Optimum-V clutch.

### THINGS TO CHECK BEFORE YOU BEGIN:

1. **Pilot Bearing (if equipped)** - If it is not new, make sure that the pilot bearing is in good condition. Proper alignment and pilot bearing will help prevent premature spline wear, fatigue, cracking and other types of clutch damage.
2. **Bellhousing Alignment**
  - Check that the transmission mounting face of the bellhousing is parallel to the crankshaft face within .006" total indicated run-out. Clean block mounting surface, making sure that it is free from nicks, burrs, paint, etc. If the measurement is not within specification, have your bellhousing machined flat to bring the mounting surfaces back to parallel.
  - The trans mounting hole of the bellhousing should be concentric to the crankshaft within .006" total indicated run-out. *The closer, the better.* If the measurement is not within specification, you will need to relocate the dowel pins in the engine block.
3. **Input Shaft**
  - Inspect the input shaft splines of your transmission for any signs of twisting or other damage.
  - Make sure each clutch disc slides all the way on the input shaft without binding. The discs should slide easily, but still have a snug fit. **DO NOT USE ANTI-SEIZE OR ANY OTHER TYPE OF LUBRICANTS ON THE SPLINES OF THE INPUT SHAFT.**

### FLYWHEEL INSTALLATION

- Refer to Table 1 to verify clutch mounting features.
- If you have a through-bolt flywheel, insert the grade 8 clutch bolts (refer to Table 1 for size) from the back side prior to installation of the flywheel. Secure the bolts using rubber bands, zip ties, etc., to keep the bolts from falling out during installation.
- Install flywheel per manufacturer's instructions.

Assemble clutch as shown in Figures 1 and 2, with the pressure plate nearest the spring. Alternate the clutch discs with the pressure/floater plates. For hub orientation of the Clutch Pac, refer to the Clutch Pac Installation Instructions.

### CLUTCH INSTALLATION

- Check that the clutch disc hubs do not interfere with each other or other parts, including crank bolts, transmission components, or other clutch parts.
- Carefully place the clutch assembly onto the flywheel, making sure that the cover registers accurately.
- If you are using a steel ring gear on the clutch cover, washers are not needed.
- If your clutch bolts have been installed from the backside of the flywheel, install the washers and thread the nuts onto the bolts finger tight.
- If your flywheel has threads or spline nuts, install the washers and bolts finger tight.
- Align the clutch discs with an alignment tool and torque the nuts or bolts in a star pattern (refer to Table 1 for recommended torques).

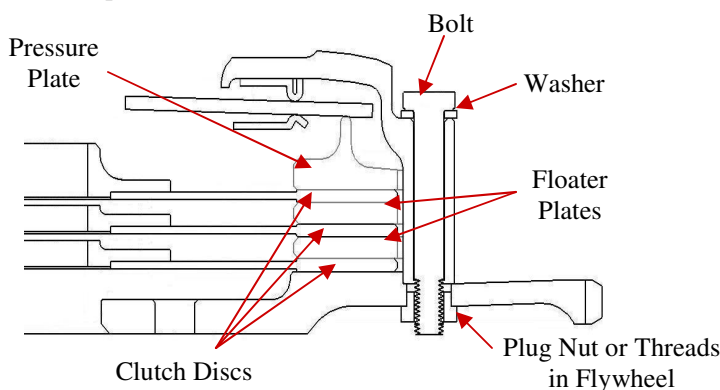


Figure 1: Threaded flywheel with 3 disc Optimum-V

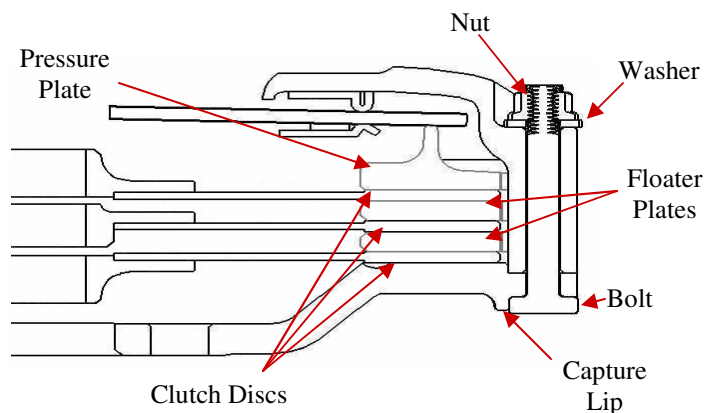


Figure 2: Through-bolt flywheel with 3 disc Optimum-V

## RELEASE BEARING

- DO NOT USE A FLAT FACE RELEASE BEARING
- Quarter Master Optimum-V clutches are designed to be used with a heavy duty radius faced release bearing with a contact diameter of 1.75"-1.875". Smaller equals better.
- Refer to Table 1 for clearance specifications. Insufficient free-play may cause premature wear.
- We recommend installing a positive stop to limit clutch pedal travel. Over-traveling the diaphragm spring (clutch fingers) will shorten the life of the clutch and also lead to premature failure of the engine thrust bearing.
- Ensure that the release bearing can fully retract. High contact pressure will cause accelerated wear.

For any problems with the clutch, refer to the Trouble-shooting Guide.

## CLUTCH MAINTENANCE

- The maximum warpage of any surface is .006". Excessive warpage will lead to clutch failure.
- The TOTAL MAXIMUM wear is .030". Refer to Table 1 for the specifications of new parts to calculate the amount of wear. Total wear includes discs, flywheel, pressure plate and floater plates.
- **REGULARLY INSPECT THE FLYWHEEL, RING GEAR AND ALL CLUTCH PARTS FOR CRACKS, ESPECIALLY IF THE CLUTCH IS USED ON AN ENGINE WITH HIGH TORSIONAL VIBRATION.**
- Inspect the diaphragm spring for excessive wear at the contact surface of the release bearing.
- If any part in the clutch is out of specification, contact Quarter Master about refurbishment.

## SPECIAL NOTES

- If you are using a cable type release (Mustang), Quarter Master recommends an aftermarket, adjustable quadrant.
- **SLIPPING A CLUTCH BUILDS HEAT, EXCESSIVE HEAT DAMAGES A CLUTCH.**

Table 1: Recommended specifications	4.5" Optimum-V	5.5" Optimum-V	7.25" Optimum-V
Size of clutch bolts	1/4"	5/16"	5/16"
Flywheel register O.D.	4.626"	5.614"	7.356"
Flywheel register height	.100"	.100"	.100"
Clutch housing bolt circle diameter (equally spaced)	10 on 5.020"	6 on 6.080"	6 on 7.875"
Clutch assembly bolt torque	10-12 ft-lbs	22-24 ft-lbs	22-24 ft-lbs
Release bearing clearance	.150"	.160"	.160"
Pressure Plate Thickness (new)	.498"	.534"	.604"
Floater Plate Thickness (new)	.180"	.180"	.180"
Disc Thickness (new)	.104"	.104"	.104"
1-Disc Overall (Clearance) Height	—	—	1.355"
1-Disc Set-up Height	—	—	.966"
2-Disc Overall (Clearance) Height	1.660"	1.523"	1.660"
2-Disc Set-up Height	1.201"	1.206"	1.271"
3-Disc Overall (Clearance) Height	1.940"	1.808"	1.913"
3-Disc Set-up Height	1.488"	1.491"	1.516"
4-Disc Overall (Clearance) Height	2.230"	2.093"	—
4-Disc Set-up Height	1.773"	1.776"	—