



“Setting the World’s  
Performance Standards”

743 East Iona Road, Idaho Falls, ID 83401, (208) 529-0244 Fax (208) 529-9000

## Clutching for 2019-20 Polaris 850 RMK Stock or with SLP Stage 1

Important: The following clutching information has been thoroughly tested and is highly recommended for proper performance and reliability. Primary weights, drive spring and driven spring must be changed according to the chart if applicable for your elevation. Running any combination other than recommended may cause poor, inconsistent performance.

| Altitude<br>(feet)                      | Drive Clutch                       |  | Stock TEAM TSS-04 Driven Clutch |                        |
|---|------------------------------------|--|---------------------------------|------------------------|
|   | Clutch Spring                      | Shift Weight   | Clutch Spring                   | Driven Helix           |
| <b>0-3000’<br/>(0-900m)</b>             | SLP<br>Blue / Yellow<br>SLP# 40-70 | Magnum Force   | Black<br>(Stock)                | 42 Straight<br>(Stock) |
|   |                                    | SLP# 40-151 (65g)<br>3 Set Screws<br>1 Lock Set<br><b>Total: 69.2g</b>       |                                 |                        |
| <b>3-6000’<br/>(900-1525m)</b>          | SLP<br>Blue / Pink<br>SLP# 40-76   | SLP# 40-150 (60.7g)<br>4 Set Screws<br>1 Lock Set<br><b>Total: 66.1g</b>     | Black<br>(Stock)                | 42 Straight<br>(Stock) |
| <b>6-8000’<br/>(1525-2743m)</b>         | SLP<br>Blue / Pink<br>SLP# 40-76   | SLP Part# 40-150 (60.7g)<br>2 Set Screw<br>1 Lock Set<br><b>Total: 64.9g</b> | Black<br>(Stock)                | 42 Straight<br>(Stock) |
| <b>8-10,000’<br/>(2743-3048m)</b>       | SLP<br>Blue / Pink<br>SLP# 40-76   | SLP# 40-150 (60.7g)<br>1 Set Screw<br>1 Lock Set<br><b>Total: 62.5g</b>      | Black<br>(Stock)                | 42 Straight<br>(Stock) |
| <b>10,000’-12,000’<br/>(3048-3658m)</b> | SLP<br>Blue / Pink<br>SLP# 40-76   | SLP# 40-150 (60.7g)<br>Empty<br><b>Total: 60.7g</b>                          | Black<br>(Stock)                | 42 Straight<br>(Stock) |

**Note: Test Sled was a 2019 Polaris 850 Patriot 163” 2.6”**

**Runnig RPM:8200-8300**



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## Clutching for 2019-20 Polaris 850 RMK with SLP Stage 1.5

**Important:** The following clutching information has been thoroughly tested and is highly recommended for proper performance and reliability. Primary weights, drive spring and driven spring must be changed according to the chart if applicable for your elevation. Running any combination other than recommended may cause poor, inconsistent performance.

| Altitude<br>(feet)                      | Drive Clutch                       |  | Stock TEAM TSS-04 Driven Clutch |                        |
|---|------------------------------------|--|---------------------------------|------------------------|
|   | Clutch Spring                      | Shift Weight   | Clutch Spring                   | Driven Helix           |
| <b>0-3000’<br/>(0-900m)</b>             | SLP<br>Blue / Yellow<br>SLP# 40-70 | Magnum Force   | Black<br>(Stock)                | 42 Straight<br>(Stock) |
|   |                                    | SLP# 40-151 (65g)<br>4 Set Screws<br>1 Lock Set<br><b>Total: 69.2g</b>       |                                 |                        |
| <b>3-6000’<br/>(900-1525m)</b>          | SLP<br>Blue / Pink<br>SLP# 40-76   | SLP# 40-150 (60.7g)<br>5 Set Screws<br>1 Lock Set<br><b>Total: 66.1g</b>     | Black<br>(Stock)                | 42 Straight<br>(Stock) |
| <b>6-8000’<br/>(1525-2743m)</b>         | SLP<br>Blue / Pink<br>SLP# 40-76   | SLP Part# 40-150 (60.7g)<br>4 Set Screw<br>1 Lock Set<br><b>Total: 64.9g</b> | Black<br>(Stock)                | 42 Straight<br>(Stock) |
| <b>8-10,000’<br/>(2743-3048m)</b>       | SLP<br>Blue / Pink<br>SLP# 40-76   | SLP# 40-150 (60.7g)<br>3 Set Screw<br>1 Lock Set<br><b>Total: 62.5g</b>      | Black<br>(Stock)                | 42 Straight<br>(Stock) |
| <b>10,000’-12,000’<br/>(3048-3658m)</b> | SLP<br>Blue / Pink<br>SLP# 40-76   | SLP# 40-150 (60.7g)<br>1 Set Screw<br>1 Lock Set<br><b>Total: 60.7g</b>      | Black<br>(Stock)                | 42 Straight<br>(Stock) |

**Note: Test Sled was a 2019 Polaris 850 Patriot 163” 2.6”**

**Runnig RPM:8200-8300**



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## **Clutch Kit Installation Instructions for Polaris Snowmobiles with TSS-04, Tied and TSS-98 Clutches**

### **Clutch Removal**

**A-1:** Lock the park brake.

**A-2:** Removal the left side pannel.

**A-3:** Locate the L-wrench in the tool kit. Install the wrench into the open threaded hole in the outer sheave of the secondary clutch.

**A-4:** Rotate the driven clutch in the forward (counter clockwise) direction 1/4 turn to disengage the rollers from the reverse notch in the helix. Then rotate the wrench clockwise until the sheaves are separated enough to remove the belt. Mark drive belt direction of rotation. (Belt is normally positioned so that the part number can easily be read) Remove the belt from the sled.

**Step 6:** Remove secondary clutch retaining bolt.

**Step 7:** Slide secondary clutch off splined shaft and remove from the sled.

**Step 8:** Remove primary clutch retaining bolt. A clutch holding tool (SLP #20-202) is recommended to hold the primary clutch stationary.

**Step 9:** Thread the primary clutch puller (SLP #20-136) into the center of the primary clutch. Hold the primary clutch using a clutch holding tool (SLP #20-202) and tighten the clutch puller with a breaker bar until the clutch disengages from the tapered shaft. Remove clutch from sled and remove clutch puller from clutch.

**Hint:** A small amount of grease on the clutch puller threads and end that pushes on the crankshaft will help in the primary clutch removal process.

## Primary Clutch Disassembly / Assembly

**B-1:** Mark the cap, spider, movable sheave and stationary sheave in relation to each other on the primary clutch. (Refer to illustration #1)

**B-2:** Compress with a clutch press tool (SLP #20-222) and loosen the six cap bolts until the cap can be removed from the clutch and set aside.

**B-3:** Remove stock primary spring. This spring will not be reused.

**B-4:** Remove pins holding weights in the primary clutch.

**B-5:** Remove weights from clutch. These stock weights will not be reused.

**B-6:** Check movement of cap and movable sheave for sticky spots which could be caused from a bad bushing. Check rollers visually and by feel to make sure they roll freely and do not show any wear. Check the clutch sheaves for excessive wear and replace clutch if hairline cracks are found. Specialized clutch rebuild tools and replacement parts are available from SLP or clutches can be sent directly to SLP for clutch rebuild services. Inquire for more information.

**B-7:** Check weight pins for wear before installation. Pins should be straight and smooth from shouldered head to threads. If wear is found, discard pins and replace pins and lock nuts (SLP# 40-437).

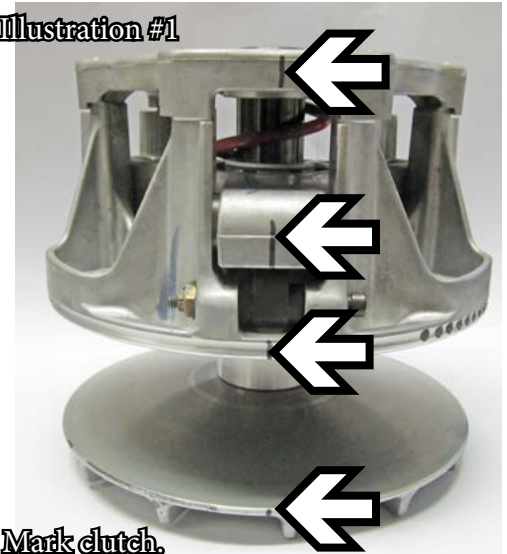
**B-8:** Install Magnum Force weights into clutch and tighten weight pins with self-locking nuts and torque to **20 in/lbs (2 Nm)**. (Refer to illustration #2 for proper weight pin orientation)

**B-9:** Using the provided SLP setup sheet, install recommended tuning set screws into the Magnum Force weights. Make sure to screw each set screw all the way to the tip of the weight until it stops at the end of the threads. When installing set screws in the Magnum Force weights, always install a lock set after all recommended set screws are in place.

**B-10:** Install SLP primary spring.

**B-11:** Line up marks made on Step 10. Compress cap to movable sheave and start all six cap bolts. In a star pattern, tighten each bolt a little at a time until the cap is seated against the movable sheave of the clutch. Torque cap bolts evenly to **100 in/lbs. (12 Nm)**.

Illustration #1



Mark clutch.

Illustration #2



Install weight pin with the nut on the LEFT side of the clutch.

## Secondary Clutch Disassembly/Assembly

**C-1:** Remove the four T25 torx head screws that hold the helix into the secondary clutch. Remove the helix.

### **Spring Removal:**

**C-2:** With the helix removed draw a line across the roller hub and vertically up the center shaft. (refer to Illustrations #3 & #4)

**C-3:** Using the spring compression tool (SLP #20-222) to hold pressure down onto the roller hub. Using a set of retaining ring pliers, unclip the c clip holding the roller hub down.

**C-4:** Slowly decompress the compression tool and roller hub. Once the spring and roller hub are removed. mark the the double splines with a silver sharpie.

**C-5:** Install secondary spring. Using a spring compression tool (SLP #20-222) Compress the spider and spring then reinstall the c clip that was removed in C-2.

**Note:** A Delrin washer is recommended.

**C-6:** Before installing the helix, rotate the roller hub so that it lines up with the X on the driven clutch. Then install helix, make sure to line up the angle you are going to use on the helix with the inside rollers.

**C-7:** Re-install the four torx head screws and torque to **8-12 ft/lbs (10.9-16.3 Nm)**.



## Clutch Installation

**D-1:** Use brake clean and a clean rag to clean the tapered shaft on the sled and the tapered mating surface of the primary clutch.

**Important Note:** Remove any glazing on the clutch sheaves using a red scotch bright pad. Clean the sheaves of both clutches with dish soap and hot water. Scrub the belt using dish soap and hot water. Then rinse the belt and sheaves thoroughly with hot water. Let completely dry before installation.

**D-2:** Install primary clutch onto the tapered shaft of the sled. Hold the primary clutch using a clutch holding tool (SLP #20-202) and torque the primary clutch retaining bolt to **80 ft/lbs (130 Nm)**. Once this is done, loosen the retaining bolt and torque the bolt once more to **80 ft/lbs (130 Nm)**.

**D-3:** Install the secondary clutch on the splined shaft of the sled making sure the clutch is completely seated on the shaft. Torque the retaining bolt to **18 ft/lbs (54 Nm)**.

**Hint:** Having the park brake on will help with aligning the splines.

**D-4:** Install the belt. (SLP recommends using the **OEM Polaris Belt** for proper operation)

## Recommended Tools



20-202



20-136



20-222

### **Tools Recommended by SLP for Clutch Kit Installation:**

#20-222 Clutch Compression Tool

#20-136 Primary Clutch Puller

#20-202 Clutch Holding Tool

### **Important Tuning Note:**

Due to the variance from one vehicle to another, the peak running RPM may vary. For example, one engine can be slightly stronger than another, the vehicle weight can vary, track length, lug height, conditions it is used in as well as altitude and temperature. Check your full throttle running RPM. When correct it will be within the minimum and maximum RPM recommendation on these instructions. If RPM is too high it can be reduced by adding more weight to the cam arms and if RPM is too low, weight can be removed. The great feature of the adjustable weights is that you can tune them for the perfect RPM for your vehicle and get the most performance.