CVT Transmissions Lab #1

Do not start this test until told that the competition is ready to start.

1. If there is something you don't understand, you may ask for clarification from the person in charge.

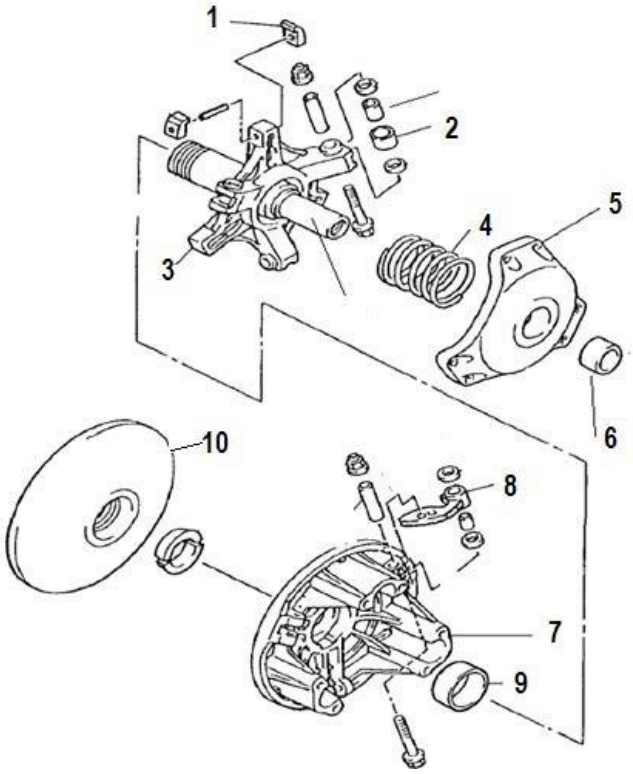
2. Using the clutches on the bench determine the component names and answer the related questions.

3. Using the service information provided in your lab sheets Remove and Reinstall the clutches.

4. If you have completed this lab early, please check your answers and wait quietly until everyone has finished, or all the time is used.

1. Primary Clutch

a. Parts Identification: Please ID the following numbered parts from a Primary Clutch. Enter responses in the following table[8].


1
2
3
4
5
6
7
8
9
10

Enter responses to diagram here[8].

1.	2.
3.	4.
5.	6.
7.	8.
9.	10.

b. Theory of Operation Questions: Referring to the above diagram[8]..

1. A CVT transmission uses the principles of _ to operate.
    a. Gravity
    b. Centrifugal force
    c. Continuously variable force
    d. Linear axis force

2. The purpose of #4 is to?
    a. Control engagement.
    b. Aid in backshift
    c. Hold clutch in neutral.
    d. All of the above

3. If we _ the mass of the flyweight we _ the shift RPM.
    a. Increase/increase
    b. Increase/decrease
    c. Decrease/decrease
    d. None of the above

4. The shift RPM of the CVT transmission is set at the engine's:
    a. Peak horsepower RPM
    b. Engagement RPM
    c. Peak torque RPM
    d. RPM limiter

5. The upshifting primary clutch forces the belt to move from a _ ratio to a _ ratio.
    a. High/low
    b. Low/high
    c. Torque/horsepower
    d. Horsepower/torque

6. What type of Outdoor Power Equipment uses this transmission design the most?
    a. Garden tractor
    b. Motorcycle
    c. Snowmobile
    d. Generator

7. Where is the primary clutch mounted?
    a. Driveshaft
    b. Auxiliary shaft
    c. Crankshaft
    d. Input shaft

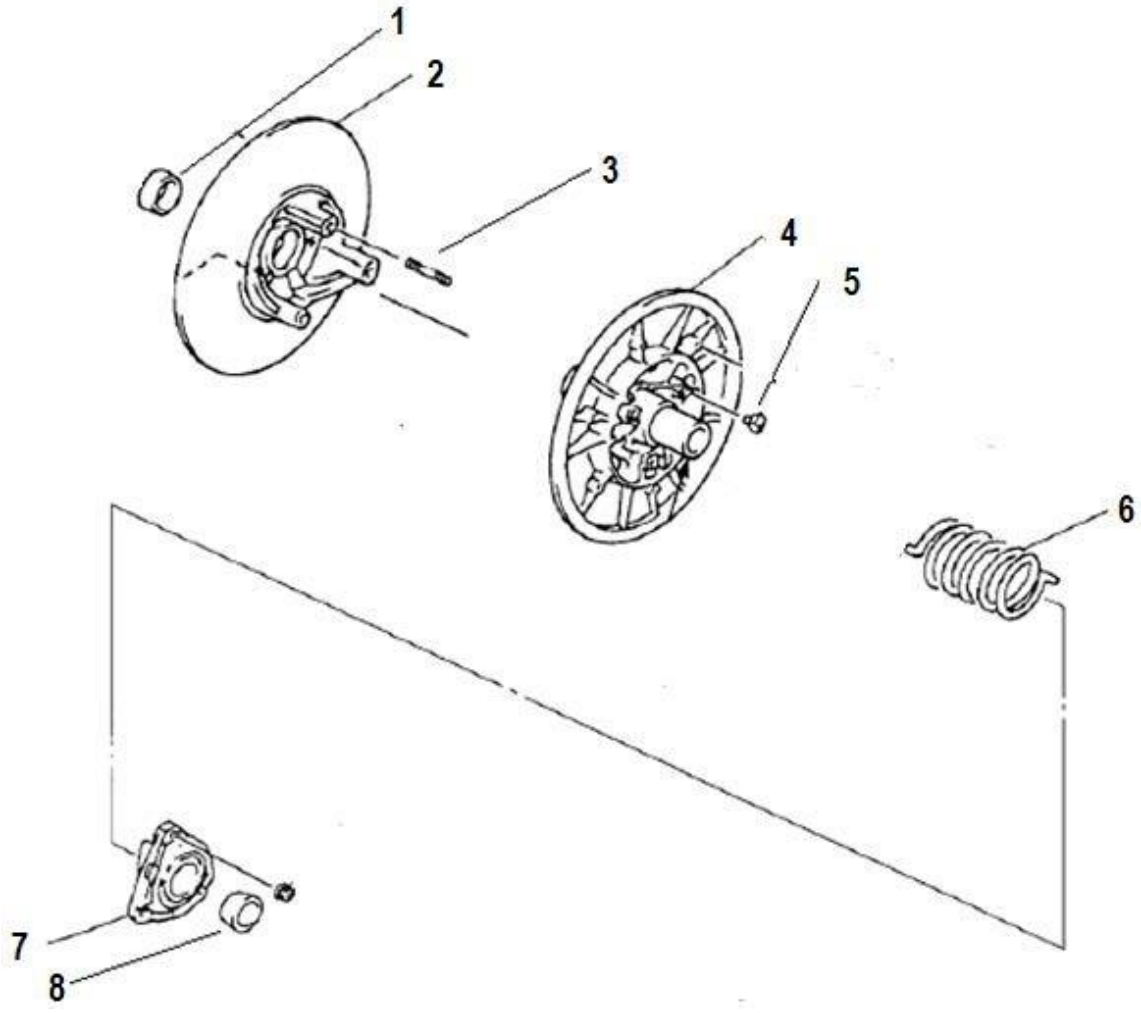
8. What would happen if the primary clutch bushings were to wear out?
    a. Increased shift RPM on acceleration
    b. Higher engagement
    c. Clutch creep
    d. All of the above

9. Which component would I change to decrease the engagement RPM?
    a. Flyweight
    b. Drive belt
    c. Primary spring
    d. Roller diameter

10. The sheave faces should be clean and free of lubricants, as well as prepped with:
    a. Maroon scotch brite
    b. Sand paper
    c. Wire brush
    d. Aluminum file

2. Secondary Clutch

a. Parts Identification: Please ID the following numbered parts from a secondary Clutch. Enter responses in the following table[8].



Enter Responses to Diagram here.

1.	2.
3.	4.
5.	6.
7.	8.

b. Theory of Operation Questions[7]**:** Referring to the above diagram.

1. Proper _ is crucial in preventing creep and bog on acceleration.
    a. Helix angle
    b. Roller diameter
    c. Button angle
    d. Belt deflection

2. The secondary clutch is responsible for the .
    a. Upshift
    b. Backshift
    c. Engagement
    d. Reverse speed

3. If the angle of the ramp on part #7 is increased the shift RPM is:
    a. Made faster
    b. Made slower
    c. Increased
    d. Decreased

4. What would happen if the secondary clutch bushings were to wear out?
    a. Increased shift RPM on acceleration
    b. Bog on deceleration
    c. Increased stress on the belt
    d. All of the above

5. Where is the secondary clutch mounted on a snowmobile?
    a. Crankshaft
    b. PTO
    c. Jack shaft
    d. Drive wheel

6. The secondary clutch uses a _ spring unlike the primary clutch which uses a compression spring.
    a. Compression
    b. Decompression
    c. Slider
    d. Torsion

7. By increasing the secondary spring preload the shift RPM will:
    a. Raise
    b. Lower
    c. Remain the same but harder acceleration will result
    d. None of the above

3. Belt & Clutch Service

Following this manual excerpt remove and install the belt and clutches from the snowmobile[5].

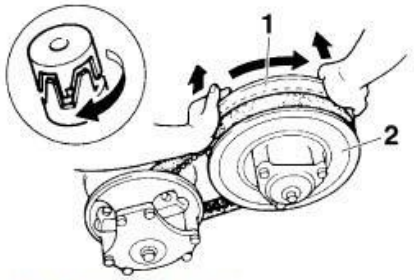
Note: Only torque the primary clutch to 43ftlbs. Not the two stage torque as shown on the manual instructions.

Note: Only torque the secondary clutch to 20ftlbs. Not the torque shown in the manual instructions.

TIP

Apply the parking brake before replacing the V-belt.

1. Remove the shroud and the left side cover, and then remove the drive guard. (See pages 19 and 46 for removal procedures.)
2. Rotate the secondary sliding sheave clockwise and push it so that it separates from the secondary fixed sheave.

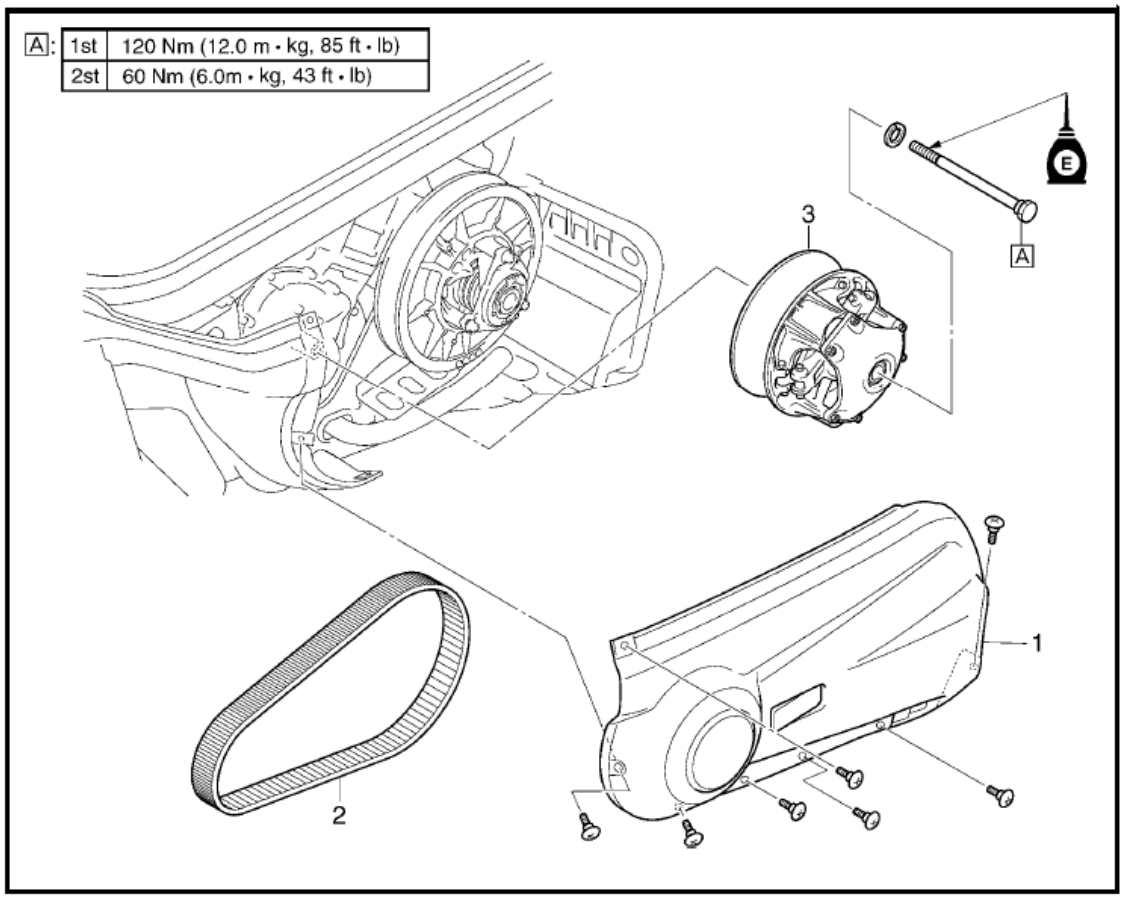


1. Secondary fixed sheave
2. Secondary sliding sheave

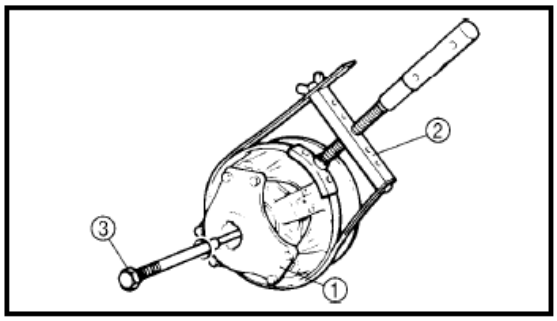
3. Pull the V-belt up over the secondary fixed sheave.

1. V-belt

4. Remove the V-belt from the secondary sheave assembly and primary sheave assembly.



Order	Job name/Part name	Q'ty	Remarks
	Primary sheave removal		Remove the parts in the order listed below.
1	Left side cover	1	
2	V-belt	1	
3	Primary sheave assembly	1	
			For installation, reverse the removal procedure.



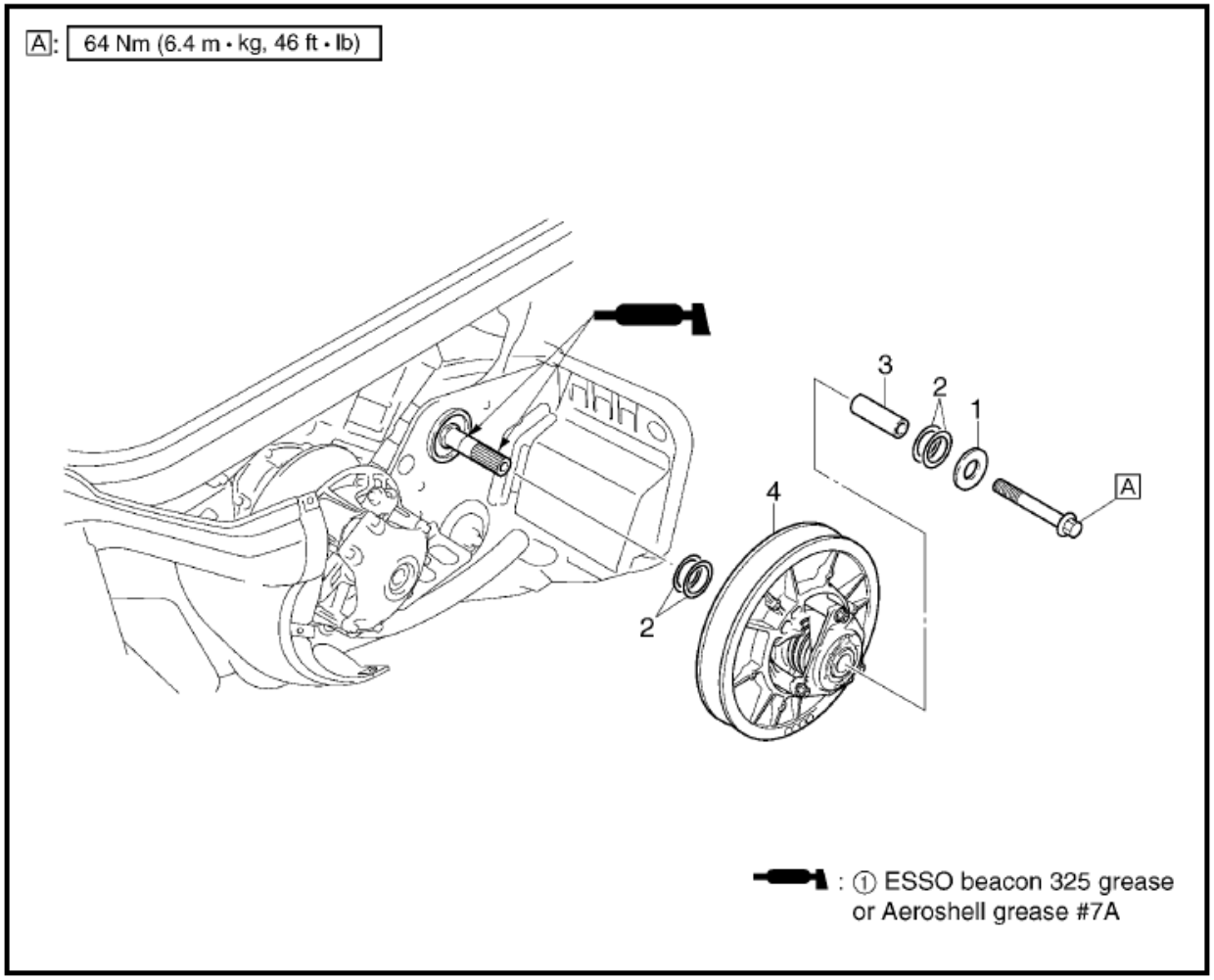
REMOVAL

1. Remove:
   - Primary sheave assembly ①

NOTE:

Use the primary sheave holder ② and primary sheave puller ③.

Sheave holder:
90890-01701, YS-01880-A
Primary sheave puller:
90890-01898,
YS-01881-A, YS-01881-1



8

Order	Job name/Part name	Q'ty	Remarks
	Secondary sheave removal		Remove the parts in the order listed below.
	Left side cover		Refer to "PRIMARY SHEAVE AND DRIVE V-BELT".
	V-belt		
1	Washer	1	
2	Shim	–	Refer to "SHEAVE OFFSET ADJUSTMENT" in CHAPTER 2.
3	Collar	1	
4	Secondary sheave assembly	1	
			For installation, reverse the removal procedure.

Questions

1. What needs to be done to the taper before reinstalling the primary clutch?

_____
_____
_____

2. What are the shims on the secondary clutch bolt for?

_____
_____
_____

3. Would it be advisable to use an impact to aid in the removal of the primary clutch?

_____
_____
_____
_____