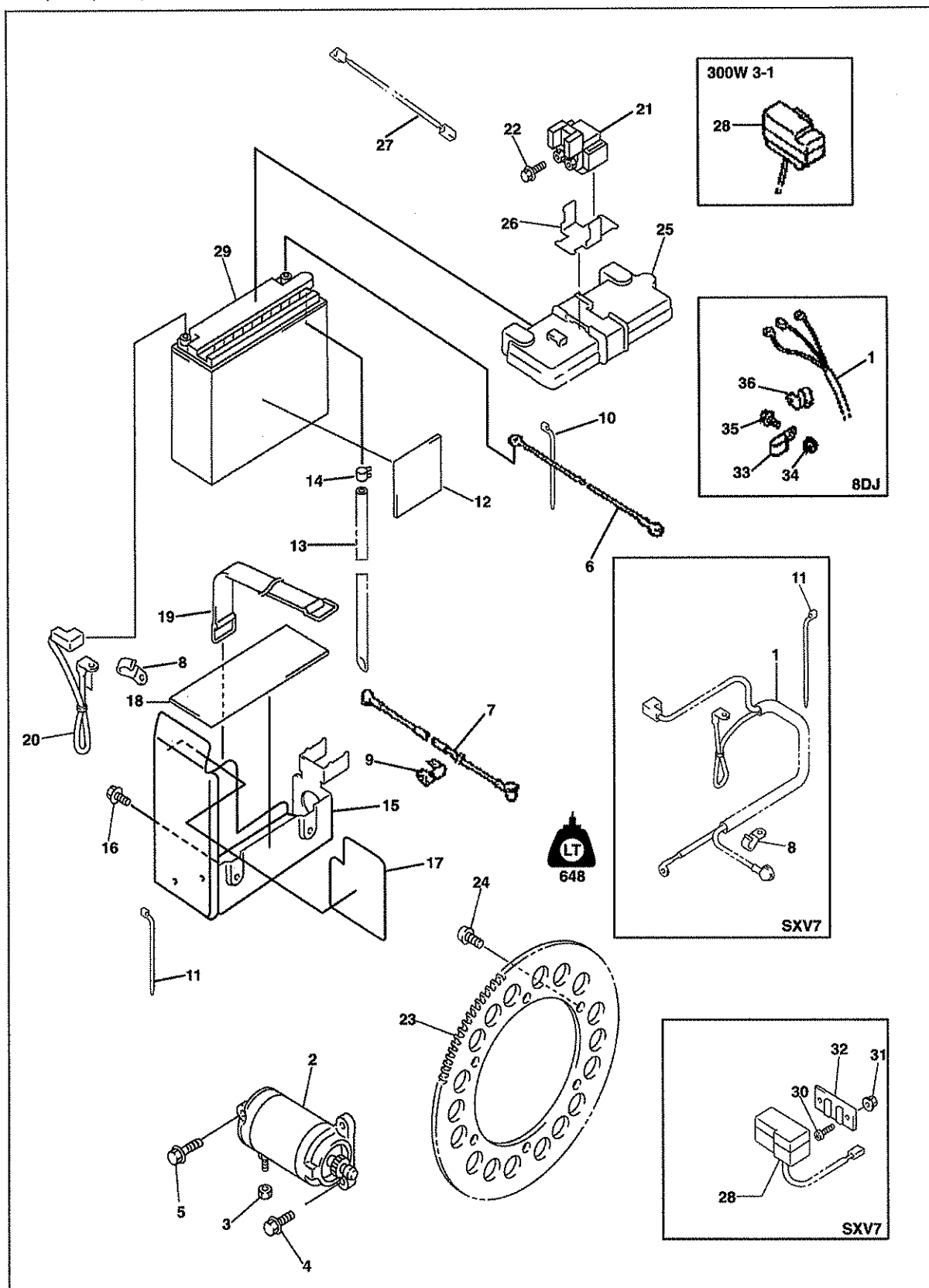


# 2006 Snowmobile Technical Update

## 8CR, 8DJ, 8DS, 8EK ELECTRICAL STARTER KITS



## PARTS LIST

Item	Part Number	Description	L/C Twin 8CR-15-KT	PZ500 8DJ-00-KT	175W 3-1 8DS-15-KT	300W 3-1 8DS-20-KT	Viper 8EK-00-KT	Venom 8EX-00-KT
1	8DX-82105-00-00	Harness, Wire		*				
1	8EK-82105-00-00	Harness, Assy					*	*
2	8CW-81800-01-00	Starting Motor Assy	*	*	*	*	*	*
3	95317-06600-00	Nut (6TA)	*	*	*	*	*	*
4	95027-08030-00	Bolt, Small Flange	*	*	*	*	*	*
5	95027-08080-00	Bolt, Flange	*	*	*	*	*	*
6	8CW-82116-00-00	Wire, Minus Lead	*					
6	8DY-82116-00-00	Wire, Minus Lead			*	*		
7	8CW-82117-00-00	Wire, Lead	*					
7	8DY-82117-00-00	Wire, Lead			*	*		
8	90462-08016-00	Clamp			*	*	*	*
9	90465-10381-00	Clamp (8CR)	*		*	*		
10	90464-13073-00	Clamp (1FK)	*		*	*		
11	90464-15195-00	Clamp (4FM)	*		*	*	*	*
12	8CW-82176-00-00	Damper	*	*	*	*	*	*
13	8CW-8235W-01-00	Pipe (L320)	*	*	*	*	*	*
14	90467-08092-00	Clip (41W)	*	*	*	*	*	*
15	8CW-2199G-00-00	Bracket, Battery	*					
15	8DM-2199G-00-00	Bracket, Battery			*	*		
15	8DX-2199G-00-00	Bracket, Battery		*				
15	8FB-8212X-00-00	Battery Box Comp.					*	*
16	90109-06513-00	Bolt (796)	*	*	*	*	*	*
17	8CW-2199H-00-00	Shield, Heat	*		*	*		
17	8DX-2199H-00-00	Shield, Heat		*				
18	84N-82122-00-00	Seat, Battery	*	*				
18	8DM-82122-00-00	Seat, Battery			*	*	*	*
19	8DM-82131-10-00	Band, Battery			*	*	*	*
19	8CY-82131-00-00	Band, Battery	*	*				
20	8CW-82115-00-00	Wire, Plus Lead	*					
20	8DY-82115-00-00	Wire, Plus Lead		*	*	*	*	*
21	3EL-81940-00-00	Starter Relay Assy	*	*				
21	4BH-81940-00-00	Starter Relay Assy			*	*	*	*
22	95027-06008-00	Bolt, Small Flange	*	*	*	*	*	*
23	8DM-1760A-19-00	Gear 1	*	*	*	*	*	*
24	90150-08008-00	Screw, Crossrecessed	*	*	*	*	*	*
25	8DM-82129-00-00	Cover, Battery			*	*	*	*
25	8DX-82129-00-00	Cover, Battery	*	*				
26	8CY-81952-00-00	Holder, Relay	*	*	*	*	*	*
27	8DS-82309-00-00	Wire, Sub Lead				*		
27	8EK-82541-00-00	Wire, Sub Lead					*	*
27	8DY-82509-00-00	Wire, Sub Lead	*		*			
28	8DS-82170-00-00	Fuse Box Assy				*		
28	8EK-82170-00-00	Fuse Box Assy					*	*
29	BTY-YB16A-LA-20	Battery	*	*				
29	BTY-Y50N1-8L-A0	Battery			*	*	*	*
30	98507-06014-00	Screw, Pan					*	*
31	95707-06500-00	Nut, Flange (4MV)					*	*
32	JT1-83614-00-00	Bracket					*	*
33	90462-10242-00	Clamp		*				
34	95607-06200-00	Nut, Self-Locking		*				
35	95817-06014-00	Bolt, Flange		*				
36	90461-08113-00	Clamp (83R)		*				

# 2006 Snowmobile Technical Update

**NOTE:** This kit must be installed by an authorized Yamaha dealer or qualified mechanic to ensure proper function and reliability. Refer to the service manual for torque specifications and procedures outlined in this manual.

## Battery Service

### **⚠ WARNING**

Battery fluid is poisonous and dangerous, causes severe burns, etc. Contains sulfuric acid. Avoid contact with skin, eyes or clothing.

**Antidote:**

**EXTERNAL** - Flush with water.

**INTERNAL** - Drink large quantities of water or milk. Follow with milk of magnesia, beaten egg or vegetable oil. Call a physician immediately.

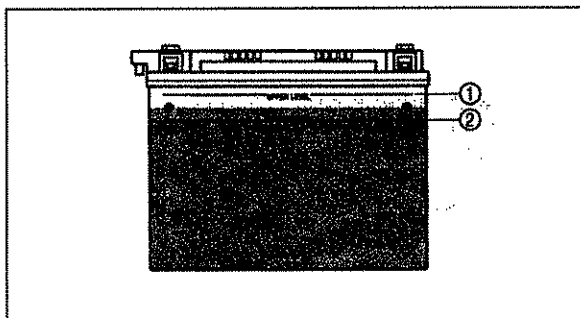
**EYES** - Flush with water for 15 minutes and get prompt medical attention.

Batteries produce explosive gases. Keep sparks, flames, cigarettes, etc. away. Ventilate when charging or using the battery in an enclosed space. Always shield eyes when working near batteries. **KEEP OUT OF REACH OF CHILDREN.**

1. Add electrolyte to the upper level line of the battery.

Upper Level ①

Lower Level ②

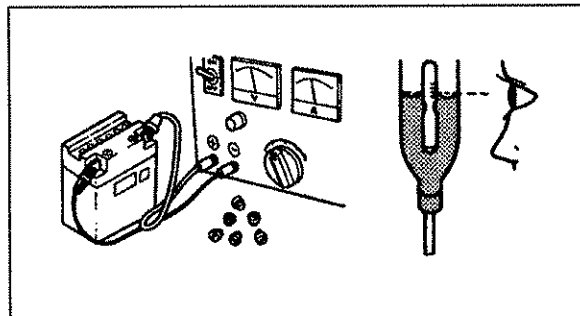


### **⚠ WARNING**

**Do not overfill the battery!**

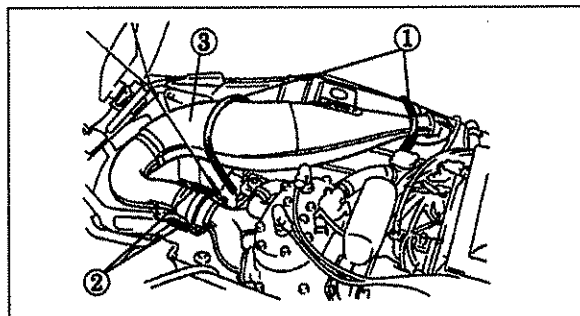
2. Loosen the vent caps.
3. Charge the battery at the rate of 1/10 of its amp hour rating.

**NOTE:** Charge the battery to 1.280 specific gravity at 68°F (20°C) before installation.

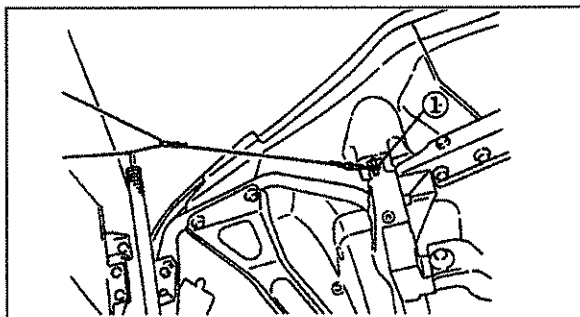


## Preparation for Installation

1. Remove the following parts of the exhaust system:
  - Spring Tension ① x 2
  - Spring Tension ② x 2
  - Exhaust Pipe Assembly ③

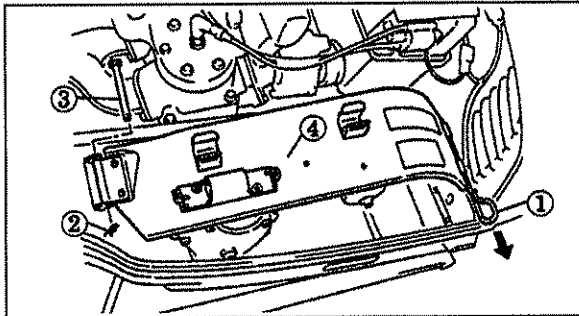


2. Temporarily relocate the wire hook which keeps the shroud in place ①.

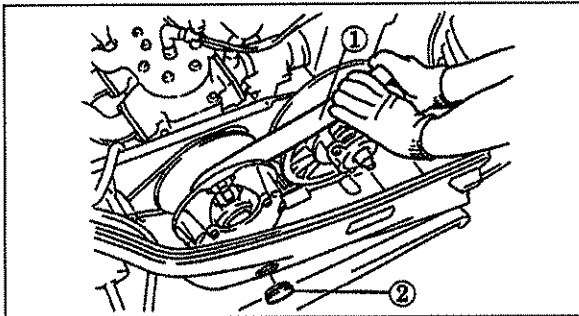


## Kit/Accessory Installation Instructions

3. Remove the following parts of the drive guard:
  - Clevis Pin ①
  - Clip ②
  - Pin ③
  - Drive Guard ④

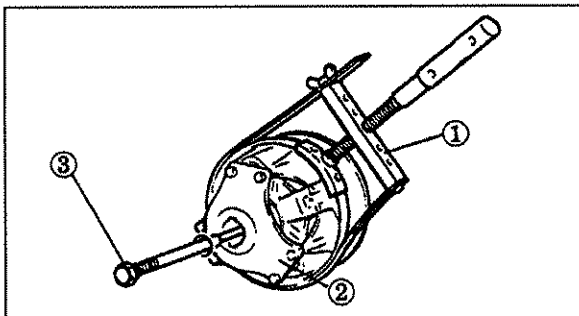


4. Remove the primary clutch by removing the following parts:
  - V-Belt ①
  - Blind Cap ②

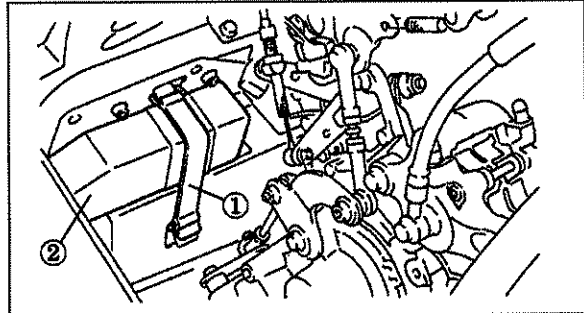


### Removing Steps

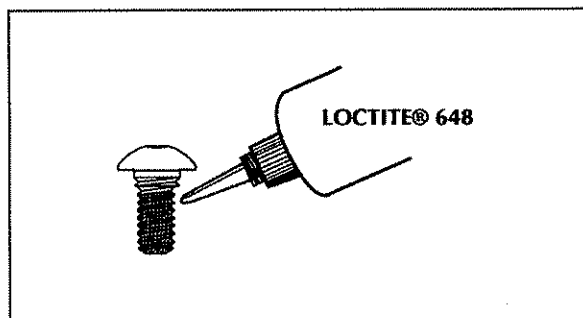
- Hold Primary Clutch ② with the Primary Clutch Holder ① to remove the primary clutch bolt and washer.
- Remove the primary clutch by using the Primary Sheave Puller ③.



5. On '97 and '98 models, remove the tool box by removing the following parts:
  - Tool Box Strap ①
  - Tool Kit ②
6. Place the tool box in the rear storage compartment.



### Starter Ring Gear Installation Procedure

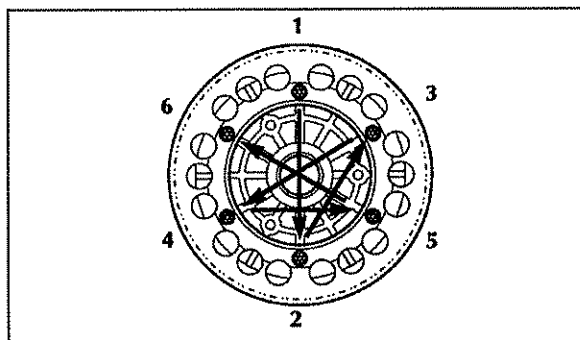
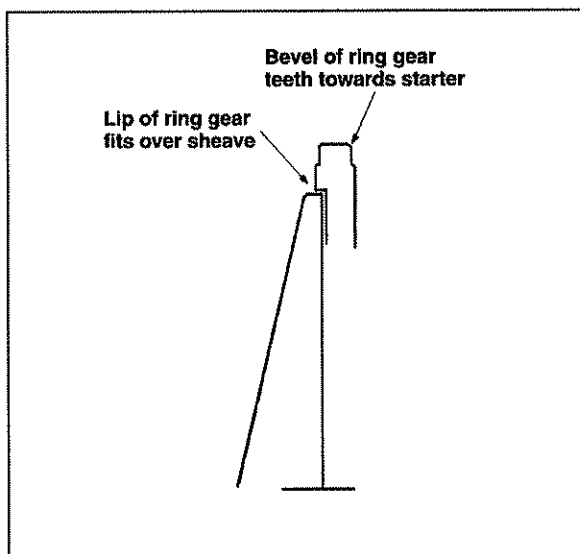


### CAUTION:

Before starting or running the engine, allow the Loctite to cure at room temperature for 24 hours.

# 2006 Snowmobile Technical Update

1. Apply the Loctite® #648 from the kit onto the threads on all six new mounting bolts. Install the ring gear onto the fixed sheave with a T30 Torx wrench. The ring gear is directional. Install the ring gear so the machined lip fits over the outer edge of the fixed sheave and the beveled side of the ring gear teeth faces towards the starter (see illustration below). Following a criss-cross pattern, tighten the ring gear mounting bolts to 20 Nm (2.0 m-kg, 14 ft-lb).



**Ring Gear Mounting Bolt Torque:**  
20 Nm (2.0 m-kg, 14 ft-lb)

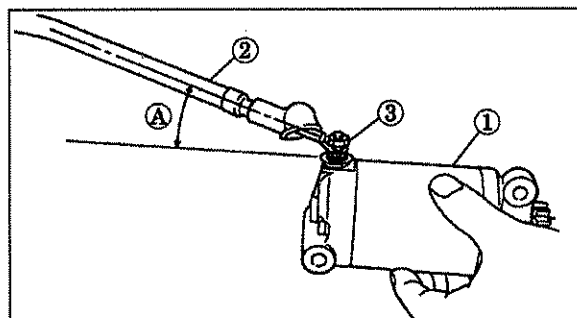
## ⚠ WARNING

- Use only Loctite® #648 for this service procedure. Other thread-locking agents, including other Loctite® products, may not secure the ring gear bolts under operating conditions.
- Replace the primary clutch fixed sheave if any bolt will not tighten to the correct specification.

## Starter Motor Installation Procedure

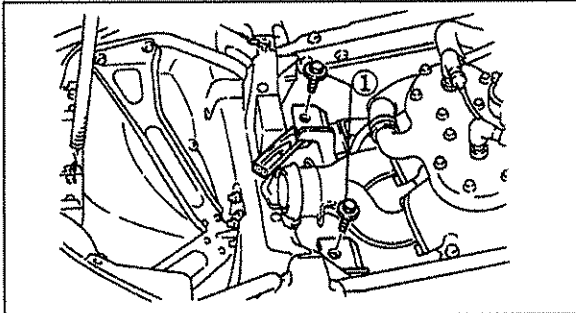
1. Assemble the following parts:
  - Starter Motor Assembly ①
  - Starter Motor Lead ②
  - Nut ③

**NOTE:** Install the lead wire at the angle of "A" (see illustration).

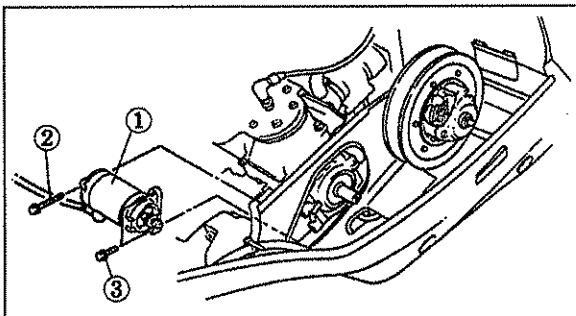


## Kit/Accessory Installation Instructions

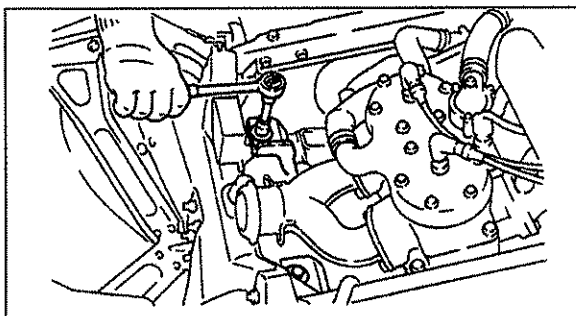
2. Providing clearance to install starter motor.  
How to provide clearance:
- After removing the two Bolts ①, lift the front of the engine by inserting boards (about 3cm thick) at 2 points beneath the engine bracket.



3. Installation of starter motor assembly.  
Install the following parts:
- Starter Motor Assembly ①
  - Flange Bolt ②
  - Flange Bolt ③ x 2
- Torque: 23Nm (2.3m-kg, 17 ft-lb)

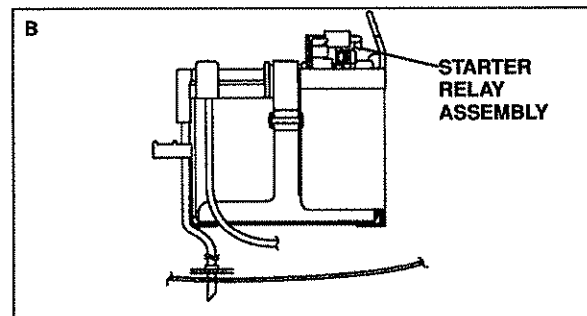
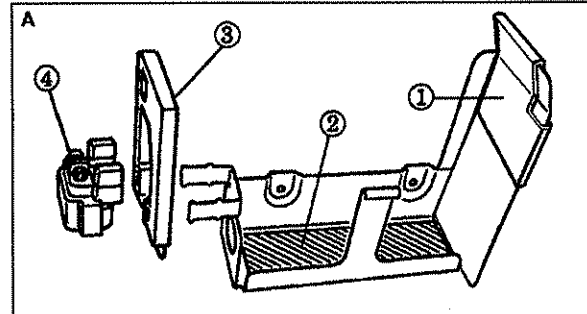


4. Install the motor mount bolts which were removed to make space.  
Torque: 90Nm (9.0m-kg, 65 ft-lb)



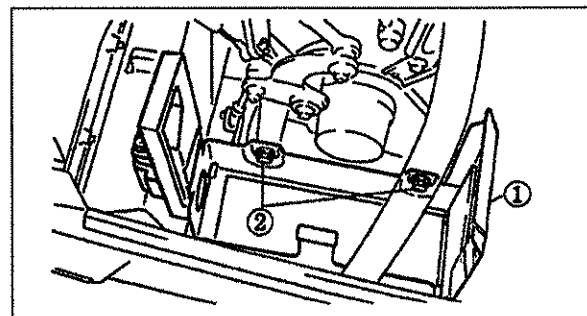
5. Assemble the following parts to the battery case:
- Heat Shield ①
  - Sheet ②
  - Terminal Cover ③
  - Starter Relay Assembly ④

**NOTE:** Illustration A below refers to the '97 and '98 models. On the '99~2001 models, the relay is located at the top of the battery cover (see illustration B below).



6. Installation of the battery case.  
Install the following parts:
- Battery Case ①
  - Bolt ② x 2

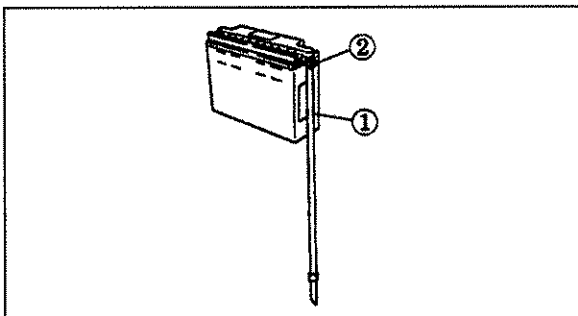
**NOTE:** On some models, the battery case mounting holes in the chain case cover are not threaded. The kit contains two self-tapping screws or thread the holes using a 6mm x 1 tap.



# 2006 Snowmobile Technical Update

## 7. Assemble the following parts to the battery:

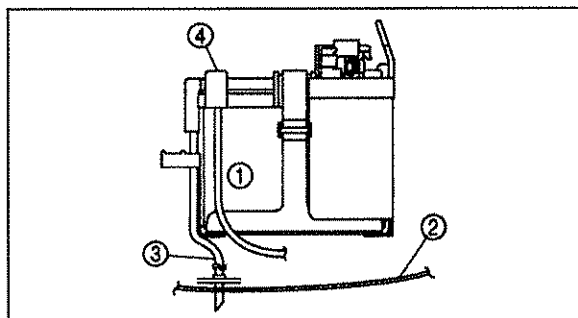
- Breather Hose ①
- Clip ②



### CAUTION:

Make sure the breather hose is routed correctly.

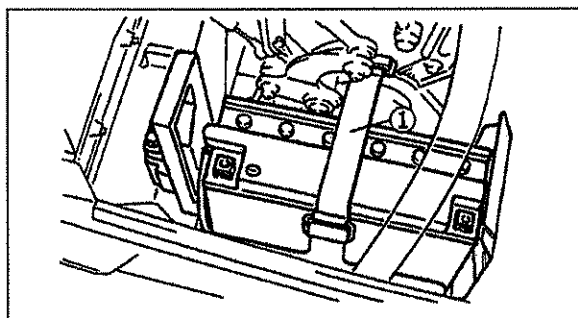
- Battery ①
- Belly Pan ②
- Breather Hose ③
- Terminal Cover ④



## 8. Installation of the battery.

Attach the battery to the battery case by using the following part:

- Band ①



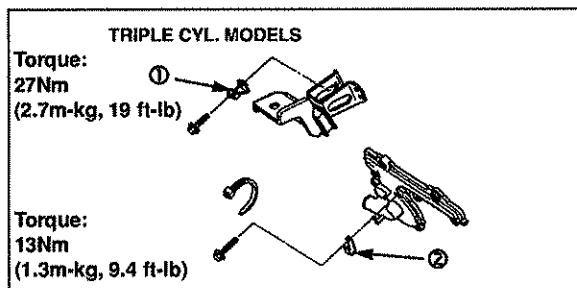
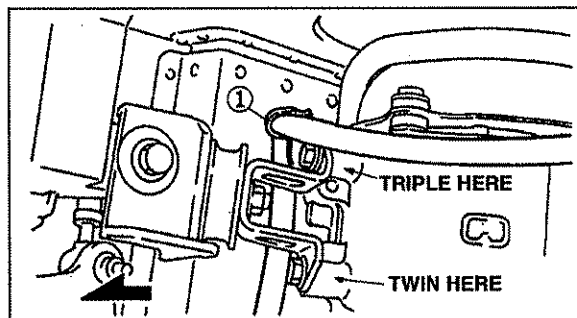
## Connecting Wires

### 1. Starter motor lead wire

Installation Steps:

- Install the Wire Clamp ① onto the front RH motor mount bolt.

**NOTE:** On the triple cylinder models, install the Wire Clamp 2 onto the water pump cover as indicated by the illustration.

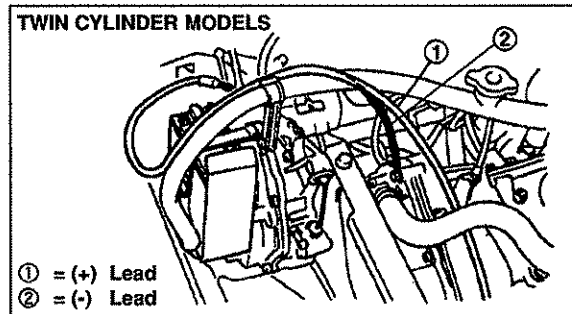


- Route the wire under the engine and place it in the clamp.
- Route the starter motor lead wire to the battery side following the coolant hose.

### CAUTION:

Make sure the wire is not in contact with any sharp edges. Make sure the wire is routed away from the exhaust system.

- Connect the Starter Motor Lead Wire ① to the Terminal "M" of the starter relay.



- ① = (+) Lead
- ② = (-) Lead

## Kit/Accessory Installation Instructions

### 2. Battery lead wire (red)

#### Installation Steps:

- Connect the lead wire (black cover side) to Terminal "B" of the starter relay.
- Connect the other side of the lead wire to the battery (+).

### 3. Battery lead wire (black)

#### Installation Steps:

**Liquid Twins:** Connect one end of the black lead to the water pump cover bolt.

**Triples:** Connect one end of the black lead to the front RH crankcase bolt.

- Connect the other side of the lead wire to the battery (-).

#### **CAUTION:**

The negative (-) battery lead must be connected to the engine.

4. Pull out the lead connector for the starter relay and then connect the starter relay.

**NOTE:** On the '99~'01 models, the starter relay wires are located on the RH front corner of the air-box.

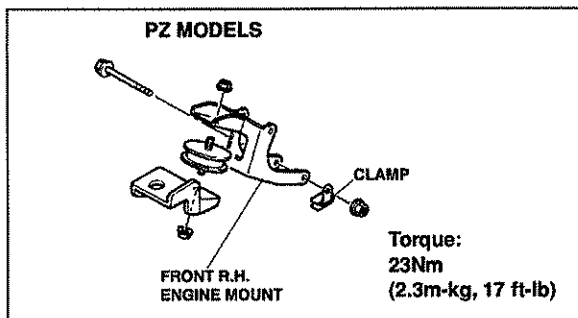
5. Remove the wire coupler cap and connect the sublead which connects to the relay.

#### **CAUTION:**

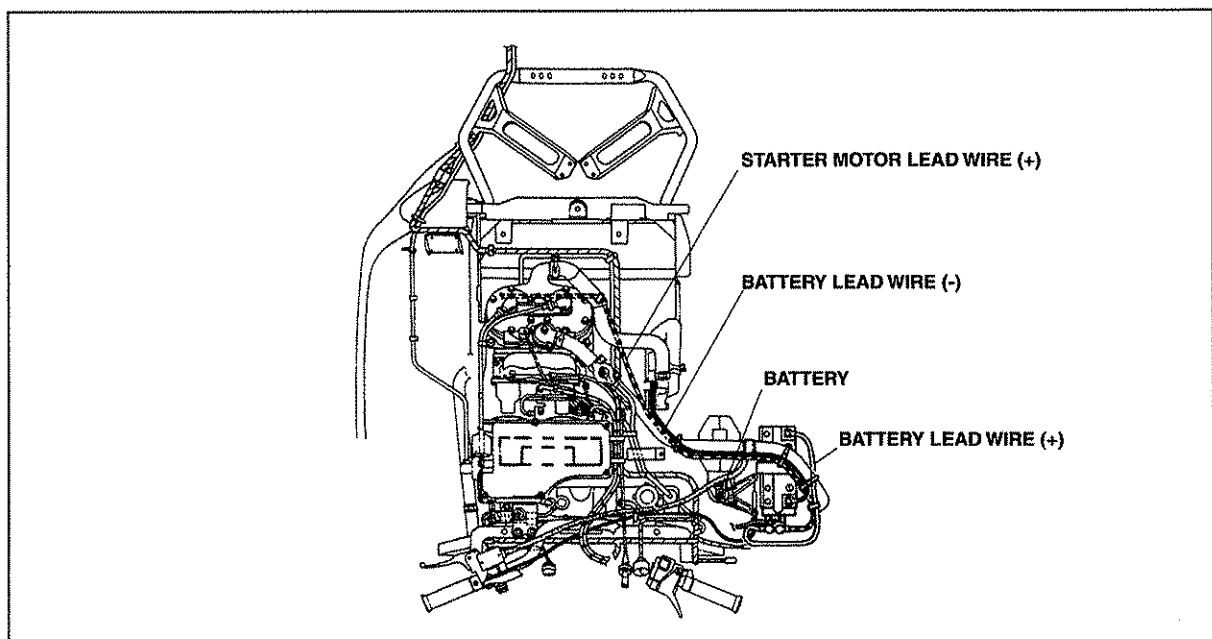
Connect the positive lead wire to the battery before connecting the negative lead wire to the battery.

**NOTE:** Route the negative battery lead wire along the coolant hose.

6. Check the routing of the wires (see illustration).



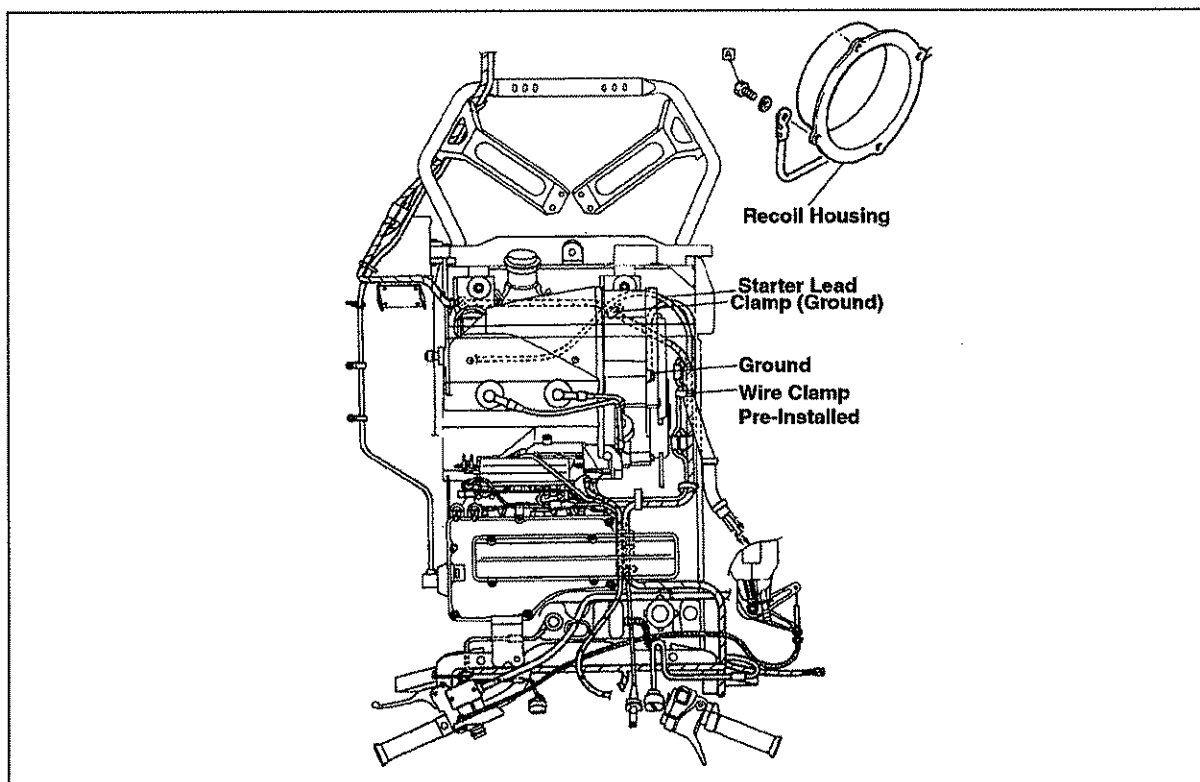
## WIRING ROUTING — LIQUID TWIN CYLINDER MODEL



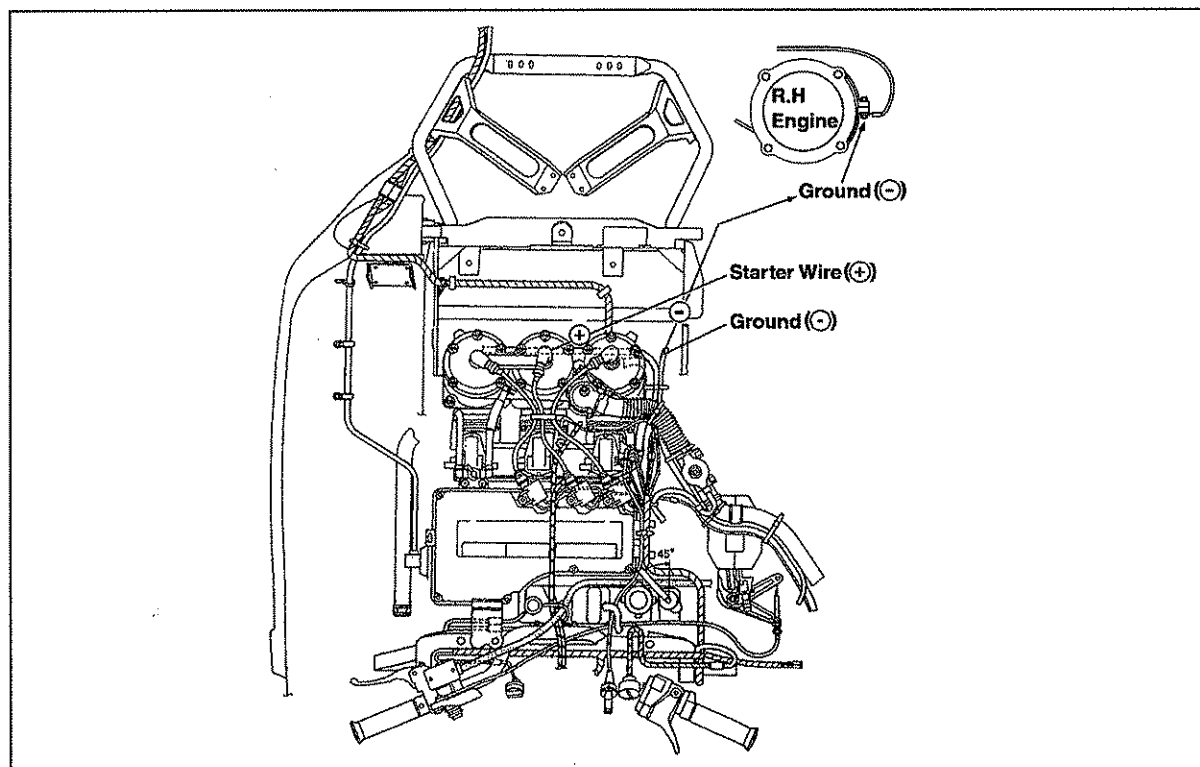


# 2006 Snowmobile Technical Update

## WIRE ROUTING - PZ500/ML



## WIRING ROUTING - TRIPLE CYLINDER MODEL

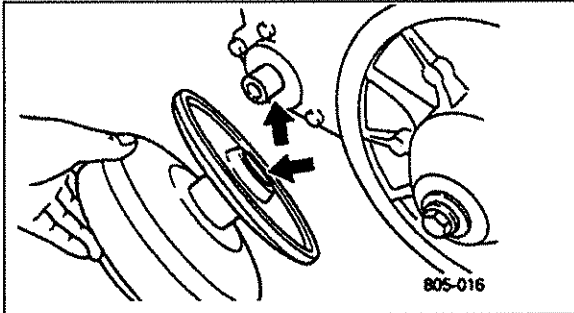


### Primary Clutch Installation:

1. Install the Primary Clutch onto the crankshaft.

#### CAUTION:

Clean the crankshaft end and the clutch taper with thinner.

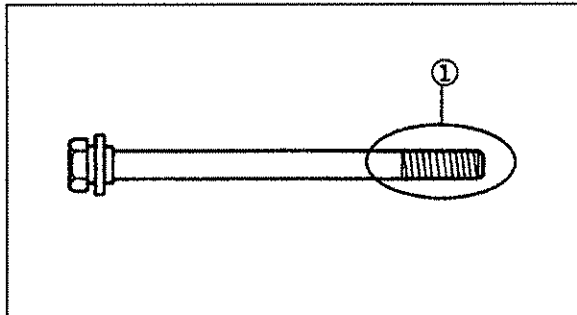


2. Put "Yamaha Lube Oil" on the screw thread of the primary sheave bolt.
3. Tighten the Clutch Bolt ①.

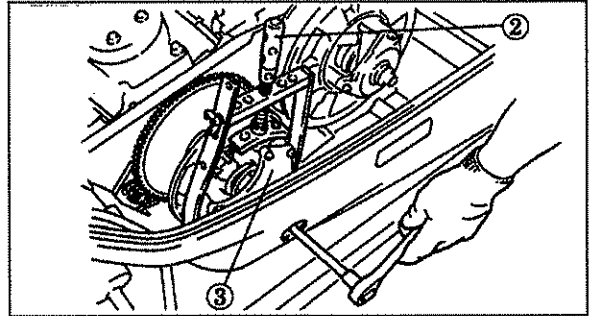
#### Tightening Steps

- Secure the Primary Sheave ③ by using the Primary Sheave Holder ②, then tighten the Primary Sheave Bolt according to the procedure below.

Initial: 120 Nm (12.0m-kg, 87 ft-lb)  
Loosen and retighten to  
Final: 60 Nm (6.0m-kg, 43 ft-lb)



**NOTE:** Measure the Sheave offset with a sheave gauge.



### Drive V-Belt Installation

1. Install the V-Belt
2. Install the following parts:
  - Blind Cap
  - Drive Guard
  - Exhaust Pipe Assembly

#### CAUTION:

**Before starting or running the engine, allow the Loctite to cure at room temperature for 24 hours.**