

# REVERSE KIT KIT PN 2870861



## Application:

For Standard Indy and Indy Lite

**NOTE:** Separate sprocket and chain packages must be ordered for use with this kit. Options are listed in the Dealer Manuals.

**IMPORTANT:** Due to the complexity of this kit, this kit should be installed by your Polaris dealer.

Before you begin, read these instructions and check to be sure all parts and tools are accounted for.

Please retain these installation instructions for future reference and parts ordering information.

<p><b>⚠ WARNING</b></p> <p><b>VEHICLE CAPABLE OF EXCESSIVE REVERSE SPEED!</b> Reverse operation can be dangerous even at low speeds. Steering control becomes difficult in reverse. Misuse of reverse can result in injury. Avoid turning at sharp angles in reverse. Transmission may not always be in the gear indicated by the shift lever. Always apply throttle slowly. On machines with reverse it is especially important to maintain track tension as specified in the owners manual. If specified track tension is not maintained severe damage to the machine may occur, which can result in loss of vehicle control. Loss of vehicle control can result in severe personal injury or death. For More Info: See Operator's Safety and Maintenance Manual supplied with reverse kit.</p>	<p><b>⚠ AVERTISSEMENT</b></p> <p><b>LE VÉHICULE PEUT ATTEINDRE DES VITESSES EXCESSIVES AU RECULONS!</b> Même à des vitesses peu élevée voyager au reculons est dangereux. La conduite devient difficile au reculons. De blessure sérieuse ou mort peut-être résultat d'un usage incorrect au reculons. Évitez de tourner à un angle aigu au reculons. Il se peut que la transmission ne soit pas dans le rapport indiqué par le levier de changement de vitesse. Toujours appliquer les gaz doucement. Avec les machines équipées d'une marche arrière, il est très important d'avoir une tension correct de la chenille. Dans le cas contraire out peu provoquer un bris dé composants. La perte de contrôle pourrait causer de graves blessures ou la mort. Pour plus de renseignements: Reportez-vous au manuel d'entretien et de sécurité fourni avec le kit de marche arrière.</p>	<p><b>SHIFT PATTERN</b> Make sure lever is shifted completely to forward or reverse position. Do not force into reverse. If not able to shift to reverse, apply throttle gently to move vehicle. <b>CAUTION:</b> Do not attempt to shift until machine has come to a complete stop or chaincase damage may occur.</p> <p><b>POSITION DU BRAS</b> Assurez-vous que le levier est placé à fond en position de marche avant ou de marche arrière. Ne forcez pas le passage en marche arrière. Si vous ne pouvez passer dans cette position, mettez les gaz doucement pour déplacer le véhicule. <b>AVERTISSEMENT:</b> Le carter à chaîne pourrait être endommagé si vous essayez d'embrayer avant que la motoneige soit complètement arrêtée.</p>  <p>PATENT PENDING 7074663</p>
---	---	---

## WARNINGS:

Read and understand all warnings. **This snowmobile is capable of excessive reverse speed!** Reverse operation can be dangerous even at moderate speeds. Steering control becomes unstable in reverse. Misuse of reverse can result in serious or fatal injury.

The transmission may not always be in the gear indicated by the shift lever. Apply the throttle slowly until the correct gear is assured.

Make sure the shift lever is shifted completely into forward or reverse position. Do not force the shift lever into reverse if resistance is felt.

The gears may not always be aligned for shifting into reverse. Forcing the lever will cause the cable to stretch and shifting may come out of adjustment. If resistance is felt, apply the throttle to move the gears to a different position and try to shift again.

Sometimes the drive belt will drag in the drive clutch causing slight tension in the transmission making it hard to shift. Shutting the engine off will remove this tension and ease shifting. This should only happen during break-in of a new belt or if the drive/driven clutch center distance is too long, which will require belt tension adjustment by your dealer.

On machines with reverse it is especially important to maintain track tension as specified in the Owner's Manual. **WARNING:** If specified track tension is not maintained severe damage to the machine may occur, which can result in loss of vehicle control. Loss of control can result in severe personal injury or death.

Never attempt to shift into reverse while machine is moving. **CAUTION:** If machine has not come to a complete stop before shifting, damage will occur to chaincase or transmission.

**The contents of this kit include:**

<u>Qty.</u>	<u>Part Description</u>	<u>Part No.</u>
1	Pinion Shaft	5130728
1	Drive Retainer Coupler	5130727
1	Chain Pinion Gear Assembly	1341076
1	Spur Pinion Gear Assembly	1341075
1	Washer, 1.625 x 1.00 x .093, Thrust (drive shaft spacer)	7555871
2	Washer, 1.125 x .632 x .066, Thrust (pinion shaft spacer)	7555877
1	Compression Spring	7041309
1	Reverse Gear Assembly	1341121
1	Chaincase Cover Assembly	1341248
1	O-Ring, Pinion Shaft Cover Seal	5410589
1	Drive Coupler	5130720
1	Clevis	5222606
1	Cotter Pin, 3/32" x 3/4"	7661205
1	Clevis Pin	7661830
1	Bolt, 5/16-18 x 2 1/2" (reverse gear retainer)	7515348
1	Lock Washer (reverse gear bolt)	7552901
1	Chain Retention Bracket	5222298
2	Screw, #10-24 x 3/8" (chain retention bracket)	7512019
1	Shift Lever Assembly	1341067
1	Shift Pattern Decal	7074663
1	Bolt, 3/8-16 x 1" (pinion shaft cover)	7512497
1	Washer, 5/16" (pinion shaft bolt)	7558403
1	Cable Tie	7080138
1	Loctite, .5 ml	2870963
2	Clamp, Hose (Liquid Cooled Models)	7080562
1	Spacer, Hose (Liquid Cooled Models)	5333063
1	Bolt, 3/8-16 x 1 1/4"	7515440
1	Nut, 3/8-16	7542414
1	Washer, 1.25 x .885 x .025	7555876
1	Washer, 1.00 x 1.254 x .023	7555917*
1	Template	No PN
1	Instructions	9911776

**\* Used instead of PN 7555876 in machines with larger diameter jackshafts.**

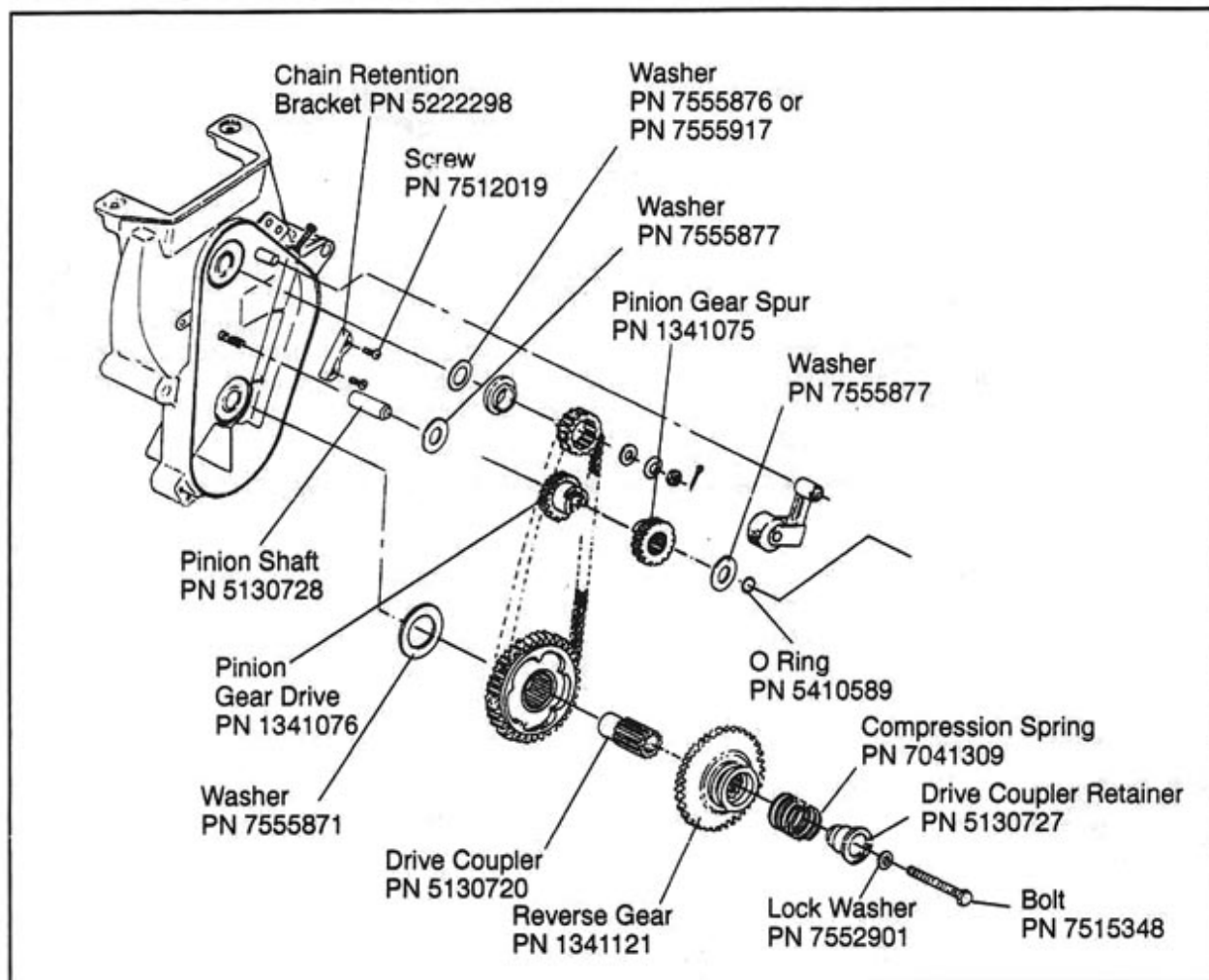
**You will need to supply:**

- 3/8" Drive Socket Set (10 mm)
- #2 Phillips Drive Screwdriver
- Locking Pliers
- Standard Socket Head Wrench Set
- Standard Combination Wrench Set
- Exhaust Spring Puller

- Loctite #271 or Permatbond #MM118
- General Purpose Grease
- Clean Shop Rags
- Polaris Chaincase Oil
- Hose Clamps (2)

**IMPORTANT:** Perform all items correctly and completely.

## INSTALLATION INSTRUCTIONS



1. Open hood.
2. Turn off fuel valve and drain carburetor.

**WARNING:** Gasoline is extremely flammable and explosive under certain conditions. Do not smoke or allow open flames or sparks in or near the area where the work is being done. If you should get gasoline in your eyes or if you should swallow gasoline, see your doctor immediately. If you should spill gasoline on your skin or clothing, immediately wash it off with soap and water and change clothing. Never start the engine or let it run in an enclosed area. Gasoline powered engine exhaust fumes are poisonous and can cause loss of consciousness and death in a short time.

3. Reach under the unit and remove the chaincase drain plug. Drain the oil into a pan and dispose of properly.

4. Release springs holding muffler and remove muffler.
5. Using cardboard or a rug under machine to protect its finish, tip machine on its left side.
6. Remove chaincase cover bolts and remove cover.
7. Loosen chain tightener and remove chain and sprockets.
8. Remove oil from chaincase using rags. **NOTE:** Dispose of excess oil or oily rags properly.
9. Apply Loctite 271/PermaBond 118 to screws (PN 7512019) and install into chain retention bracket (PN 5222298). **NOTE:** It will be necessary to use a compressor to blow excess oil out of the screw holes. Tighten screws until bracket is drawn into recess. See Ill. 1.
10. Remove Nylok nut which is threaded onto pinion shaft stud.
11. Install pinion shaft (PN 5130728) with chamfer out onto stud using Loctite supplied with kit. **NOTE:** Be sure stud is clean of all oil.
12. Using bolt (PN 7515440) and nut (PN 7542414) tighten the pinion shaft onto the pinion shaft stud. Remove the bolt and nut after tightening by holding the head of the bolt and loosening the nut.
13. Install pinion gear washer (PN 7555877) on pinion shaft.
14. Install new drive shaft spacer (PN 7555871) on drive shaft.
15. Remove existing sprocket from jackshaft. Install washer (PN 7555876 or PN 7555917) behind it and reassemble sprocket.
16. Install existing chain and top sprocket, and bottom option sprocket and chain pinion gear (PN 1341076) into chaincase. **NOTE:** The chain pinion gear has the wide gear face of the two gears. Chain, sprockets and pinion gears must be installed together. Check options parts list for proper gear. If a new drive sprocket or chain is not supplied, use existing parts.
17. Index drive coupler (PN 5130720) into reverse gear assembly (PN 1341121) before installation to be sure there is no binding in the spline area. To do this, hold reverse gear in a horizontal position with the hole vertical. Let the coupler slide through under its own weight. Mark the orientation of the drive coupler and reverse gear to be sure indexing is maintained during installation. **NOTE:** If binding occurs, rotate coupler until it slides through freely. **WARNING:** Improper indexing of drive coupler in reverse gear during installation could cause binding of gears and failure to shift, resulting in vehicle going in the opposite direction indicated by the shift lever. This could result in severe injury or death to operator, passenger or bystanders.
18. Install the reverse gear assembly (with spring (PN 7041309) and drive retainer coupler (PN 5130727) on drive coupler.
19. Apply pressure to spring retainer and install lock washer (PN 7552901) and bottom gear bolt (PN 7515348).
20. Tighten top gear using existing nut. Torque to 50 ft. lbs. Install cotter pin (PN 7661205) and bend tabs.
21. Install tightener and adjust chain by finger tightening. **NOTE:** Chain should have slight play above tightener roller of .050" (.1 cm).
22. Install spur pinion gear (IPN 1341075) and outer spacer (PN 7555877).

**ON OLDER LIQUID COOLED MODELS WHERE COOLANT HOSE INTERFERES WITH REVERSE CHAINCASE COVER:**

23. Clamp coolant hose off 2" (5.1 cm) in front of and 2" (5.1 cm) behind forward edge of chaincase.
24. Cut hose at forward edge of chaincase.
25. After installing chaincase cover, install spacer (PN 5333063) and clamps (PN 7080562) on rear hose. **NOTE:** It is easiest to connect forward hose to spacer once cover is installed. Coolant hose spacer will run between stinger outlet and chaincase cover.

26. Slide hose spacer between stinger outlet and chaincase cover and clamp forward hose to spacer.

27. Remove hose clamps installed in step 23.

**ALL MODELS:**

28. Apply grease to pinion shaft O-Ring (PN 5410589) and install into recess in chaincase cover.

29. Install chaincase cover assembly (PN 1341248), making sure shift fork fits into groove on reverse gear.

30. Reinstall cover retainer bolts removed in step 6. Torque to 5 ft. lbs.

31. Install pinion shaft bolt (PN 7512497) and washer (PN 7558403) Torque to 10 ft. lbs.

32. Tip machine down on skis.

33. Remove handlebar pad.

34. Mount shift lever assembly (PN 1341067) on right hand side of handlebar next to throttle block. See illustration.

35. Remove lower cable adjusting jam nut from cable end.

36. Slide cable adjuster through cover bracket and reinstall jam nut.

37. Hook clevis (PN 5222606) onto cable.

38. Install clevis onto shift lever using clevis pin (PN 7661830) and cotter pin (PN 7661205).

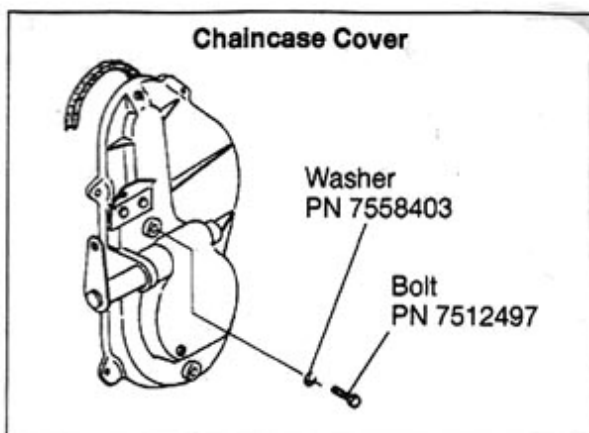
39. With shifter in forward position, adjust cable so there is 1/32" (.08 cm) movement of cable housing in holder on handlebar.

40. Reinstall chaincase drain plug.

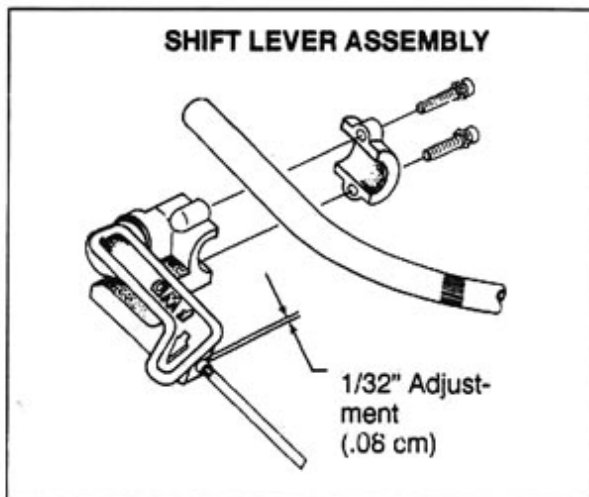
41. Fill chaincase with Polaris chaincase oil to the full mark on the dipstick. **NOTE:** On 1992 and prior year models, use approximately 9 oz. (72 ml) oil. Later models use approximately 12 oz. (96 ml).

42. Install shift pattern decal (PN 7074663) onto headlight pod. **NOTE:** Be sure no other decals will be covered by this decal.

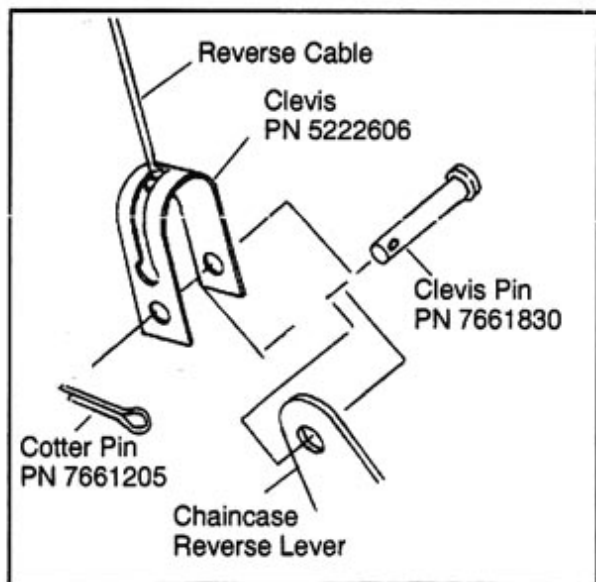
43. Reinstall muffler removed in step 4.



Step 31.



Step 34.



Step 38.



**LIQUID COOLED MODELS IF COOLANT HOSE SPACER WAS USED:  
(Standard Indy Lite, Storm, Storm SKS, RXL and RXL Touring)**

44. Fill surge tank with coolant to maximum indicated mark.
45. Start engine and loosen bleed screw on top of water pump until trapped air has been purged. Tighten bleed screw.
46. Loosen bleed screw at end and top of water outlet manifold until trapped air has been purged. Tighten bleed screw.
47. Recheck surge tank coolant level and add coolant again if necessary.

**ALL OTHER LIQUID COOLED MODELS IF COOLANT HOSE SPACER WAS USED:**

48. Fill overflow tank with coolant to hot or maximum indicated mark.
49. With pressure cap removed, add coolant and fill to top of filler neck.
50. Install pressure cap with lever lock up (in its release position) and run engine at fast idle for two to three minutes to purge system of trapped air.
51. Close lever lock and check recovery tank fluid level.

**ALL MODELS:**

52. Attach cable tie (PN 7080138) to hold shift cable to steering post so hood does not catch cable.
53. Check cable routing to be sure it does not interfere with air box foam, carb venting, throttle cable, etc.
54. Test machine at low speeds before putting into service.

**REVERSE KIT MAINTENANCE:**

Chain tension:

Maintain the proper chain tension by loosening the lock nut and applying 20 in. lbs. of torque to the adjuster bolt. Loosen the adjuster bolt 1/2 turn. Hold the adjuster bolt in position and tighten the lock nut.

Oil level:

Using **only** Polaris chaincase oil, maintain the proper level in the chaincase. **CAUTION:** Do not mix or use other types of lubricant. Excessive wear to chain, sprockets and bearings will result.

Oil change:

Change oil annually.

Adjustment:

Due to break-in of components and cable stretch, the shifter may need readjustment. Adjust with the shifter in the forward position. Adjust the nuts on the lower cable end so the end play movement of the cable housing in the holder on the handlebar is 1/32" (.08 cm). Do not adjust beyond this point.

Loctite is a registered trademark of the Loctite Corporation.

Permabond is a registered trademark of Permabond Adhesives Ltd.

Instruction PN 9911776 Rev 07 2/97

Printed in U.S.A.