Foreword

This service manual, edited by Dinli Metal Industrial Co., Ltd., Taichung, Taiwan, is designed primarily for its distributors and trained mechanics. This service manual provides tables containing the structure and maintenance parameters of Dinli ATVs with illustrations and descriptions. It strives to be a precise and easy reference for mechanics when maintaining Dinli ATVs. In the case where the owner has insufficient experience to do the work, it is recommended that a qualified mechanic carry out all adjustments, maintenance, and repair.

Dinli Metal Industrial Co., Ltd. is permanently making improvement on the design of its model. Whenever there are changes in products specification, they will be included in a reprinted service manual.

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150 cc. models

FRONT BRAKE INSPECTION AND ADJUSTMENT

Proper brake lever free play can avoid brake dragging

1. Front brake inspection
   Apply the front brake lever.
   Check
   If the arrowhead on the front brake overlaps with the flange on the brake hub cover, replace the front shoe.

   To replace the brake shoe, replace the left and right brake shoes at the same time.

2. Front brake adjustment
   Before adjusting the front brake, check the brake shoe first
   Check:
   Front brake lever free play
   Not as specified → adjust
   Front brake lever free play: 10–20 mm.

(2) Adjustment
   Properly turn the adjusting nuts until the free play is as specified.

To adjust the front brake, adjust the left and right wheels at the same time.
After adjusting, apply the front brake lever to check the left and right wheels for braking simultaneously. Otherwise adjust again.
REAR BRAKE INSPECTION AND ADJUSTMENT

1. Check
   (1) Brake disk
      Worn/damaged ---> replace
      Not as specified ---> replace
      Min. Thickness limit : 3.0 mm

   (2) Rear brake pads
      When pad wears out
      Indicator pin will be rubbing rotor
      Replace as needed.

FRONT & REAR SHOCK ABSORBERS

1. Check the front shock absorbers.
   Compress shocks by pressing down on handlebars and compressing wheel upwards.
   If shock has excess play or leaks, replace.

2. Rear shock absorber inspection
   Compress rear shock by pressing down on rear bumper.
   If shock has excess play or leaks, replace.
STEERING MECHANISM INSPECTION AND ADJUSTMENT

1. Place the ATV on a level surface.
2. Support the vehicle body with a work stand to raise the front wheel off the ground.

3. Check for
   (1) Slack
       Hold the handlebar and front wheel with both hands, move left and right.
       If slack tighten the lock nuts of steering shaft, handlebar clamp, and ball joint arm.
       After tightening and play is still evident - replace.

   Torque:
   Steering shaft lock nut: 80 - 95N.m
   Steering shaft holder lock nut: 25 - 40N.m
   Handlebar clamp lock nut: 8 - 14N.m
   Ball joint arm lock nut: 40 - 55N.m

   If play is still evident after tightening to specification, replace parts needed.

   (2) Turn the handlebar left and right. If steering is difficult, remove the steering shaft assembly. Check the sleeve and lubricate the joint parts of steering mechanism.

TRANSMISSION INSPECTION AND ADJUSTMENT

1. Check
   (1) Drive chain
       Check the drive chain for slack or dryness.
       Slack/damaged → replace
       Worn/damaged → replace
       Lubricate with chain lubricant.

   (2) Sprockets
       Check the sprockets
       Worn/deformed → replace
       Inspect both front and rear sprockets for wear or damage.

   (3) Adjust
       Loosen the 4 lock nuts of rear axle bearing seat assembly and adjust the adjusting nuts to make the drive chain tight as specified.
       After proper tension is achieved, lock down adjusting nut and retighten bearing seat lock bolts.

   Torque:
   Axle bearing seat lock nut: 25 - 40N.m
**ENGINE DISASSEMBLY**

Carburetor
Remove:
Shut off fuel with fuel petcock.
Remove fuel line and unplug electronic choke.

Hose, Cables and wires
Remove:
- Coil wire

Remove:
Both hose clamps.

Remove:
Footboards, chain and sprocket shield.

Remove:
Rear muffler mount and two exhaust studs at cylinder.

Remove:
-Battery
Remove valve cover

Find top dead center (TDC) by turning fly wheel until the T mark is lined up perpendicular to the block indicator as shown.

Remove intake and air shroud

Valve clearance adjustments can only be done at TDC. At this position you may adjust both intake and exhaust. If not within specification, adjust and recheck.

Specification:

Valve clearance: Intake: 0.075mm or 0.003 inch
Exhaust: 0.102mm or 0.004 inch

With piston at TDC, camshaft timing marks will be parallel with cylinder head housing as shown.

NOTE: Be certain that piston is at TDC and not 180 degrees off.
Remove timing chain adjuster.

When installing timing chain adjuster the following is needed:
Release tension from timing chain adjuster by removing cap screw and turning small flat head screw clockwise until it bottoms out. While holding screw in place, lower adjuster down in position and tighten secure bolts. Once adjuster secure bolts are tight release screwdriver and adjuster will automatically adjust.

NOTE:
Always install with a new gasket.

Remove camshaft cap.
When reinstalling camshaft cap be certain that E X stamped in cap is facing the exhaust side of engine.

While inspecting camshaft and camshaft cap be certain no wear is evident on both cap and camshaft.

NOTE:
If wear is evident or grooves are apparent, replace.
Remove cylinder secure bolts.

Before removing cylinder the exhaust side chain guide must be removed.

In order to check ring end gap, you must first install rings in cylinder and using a feeler gauge check the gap between rings.

**Note:**
Place ring 1 inch below cylinder surface.
Check each ring individually.

Specification:
Ring end gap. 2.54mm - .381mm

To check Piston to Cylinder wall clearance: place piston inside of cylinder wall. While using a feeler gauge measure the clearance between piston and cylinder wall. If not as specified rework.

Specification:
Piston to Cylinder clearance. .229mm - .305mm

When installing rings be certain that dark ring is located on second groove with letter or number facing upwards.

You may also notice the lighter colored ring will have a bevel on edge of ring; this ring installed on top groove.

When installing piston lubricate both piston and cylinder wall with oil, and install rings as specified previously.

**NOTE:**
When installing piston, be certain the valve relief indentation stamped IN is facing the intake side of cylinder.
**ENGINE SEPARATION**

Lever, gear shift

Remove:
- Conical knob.

Remove:
- Bolt 1--1
- Bolt 2--2
- Mounting screws--3
- Crimp bolt.

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**COVER, GEAR**

Remove:
- NUT--1
- SPROCKET--2
- Gear assembly--1
- Gasket--2
- Screw--1
3. ENGINE SEPARATION

CYLINDER HEAD, CYLINDER AND PISTON

NOTE
Do not remove the engine. To repair cylinder head, cylinder and piston, only the following parts are to be removed:
- fenders
- footrest
- carburetor

Remove:
- cylinder baffle shroud

NOTE
Pull out the flange 1 of the cylinder baffle shroud from the preformed holes 2 of the left crankcase.

Remove:
- intake elbow
- reed valve
- spacer

Remove:
- cylinder-1
- cylinder gasket-2

Remove:
- spark plug -- 1
- cylinder head
- head gasket

NOTE
Block the open end of the crankcase with clean cloth to prevent the circlip 1 dropping into the crankcase.

NOTE
- Loosen nuts by crossing them.
  Loosen every nut 1/4 turn. Only remove nuts after all nuts are loosened

Before removing head, remove timing chain, timing chain adjuster and camshaft.
Remove:
- O-ring 1
- Nut (clutch hub)

**NOTE**
- Fix clutch hub with clutch holder to facilitate loosening

Remove:
- rear belt pulley assembly 1
- V-belt 2
- gasket 3

Remove:
- fan

**NOTE**
- As illustrated by the figure, press the rear belt pulley assembly with hands to remove the V belt and rear pulley assembly at the same time.

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**STARTER CLUTCH**

**NOTE**
To inspect and repair the clutch, only the following parts are to be removed. It is not necessary to dismantle the engine.
- Left crankcase cover
- Front and rear pulleys
- V belt

Remove:
- fixed plate
- starter clutch
Remove:
- needle bearing

**MAGNETO**

Remove:
- stator assembly
- woodruff key

**NOTE**
Special puller is needed to remove flywheel.

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**STARTER MOTOR**

**NOTE**
To check and repair the starter motor, only the following parts are to be removed. It is not necessary to dismantle the engine.
- Muffler assembly

Remove:
- starter motor

When checking starter motor, inspect teeth on end of armature. Replace if damaged or worn.
**BEARING AND OIL SEAL**

Check:
- bearings (all parts of engine)
- After cleaning and lubricating, check for bearing condition and gritty movement
- Bad movement - replace

Check:
- Bearing (all parts of engine)
- Damaged/abraded - replace
- Install:
  - bearing 1

**Apply lithium grease to the oil seal lip.**

Install:
- Breather 1
- Hose 2
- Flange 3

**NOTE**
- Apply gear oil to the middle shaft and rear shaft.

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**CRANKCASE(RIGHT)**

Remove:
- screws
- fixed plate

Remove:
- crankcase(right)

After removal of screws, split cases

**caution:**
Do not pry on sealing surface. Damage will occur.
Remove crank assembly from cases.

NOTE
Be careful not to damage end of crank during removal.

When inspecting rod assy:
On crankshaft check for any movement up and down, if so replace.

NOTE
some side-to-side play is normal.

Before assembly, clean cases thoroughly.
No gasket is used here, sealant only.
After gluing, be certain dowel pins are in place.

NOTE
Always replace both crank seals once you remove crank assy.

INSPECTING PARTS BEFORE ASSEMBLY

Check:
- cam plate (front belt pulley) 1
- buffer block 2
- Abraded/damaged - replace

TOOTHED BELT

Check:
- toothed belt 1
Cracked/abraded/thread separation/breath - replace
saturated by oil - replace
REAR BELT PULLEY

Check:
- rear belt pulley (fixed) 1
- rear belt pulley (slide) 2
- oil seal 3

Scraped/cracked/damaged - replace the whole set.

STARTER CLUTCH AND GEAR

Check:
- starter clutch
  Install the dowel pin into the slot, and turn it in the slot in the arrowhead direction.
  Not smooth - replace starter clutch assembly.

Check:
- teeth of starter gear 1
- teeth of idle gear 2
Deformed/ablated/abraded/breach - replace.

STARTER CLUTCH

Install:
- washer
- bearing

NOTE
- Apply molybdenum disulfide engine oil to the gear hub.
Install:
- starter clutch  1
- fixed plate  2

TOOTHED BELT, FRONT AND REAR BELT PULLEYS, AND KICK-START MECHANISM

Clean:
- side surface (front belt pulley)
Install:
- roller 1 to roller path 2

Do not apply any grease to rollers or pulleys.
For smoother action, apply liquid graphite to rollers and allow to dry.

NOTE
- Hold the cam plate and slide disk together with hands to avoid roller falling off.

Install:
Fan

NOTE
- Make sure the O-ring is set into the fan slot.

WARNING
- Use a new O-ring.

Install:
- sector gear assembly
- return spring
- bush
- plate washer
- circlip
Hook:
  -return spring

**NOTE**
-As shown in the figure, hook one end 1 of the spring on the flange A and the other 2 into the sector gear.

Install:
- spring clip 1
- starter pinion 2

**NOTE**
-Install the spring clip as shown in the figure.

Install washer and snap ring to outside of cover, on sector gear assembly.

Install:
- dust cover

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Install:
- dowel pin
- left crankcase cover 1

**Note**
- Fasten clockwise.

Install:
- shock absorber pad
- kick lever

**Note**
- Make the kick lever parallel to the edge of the crankcase.

**CYLINDER HEAD, CYLINDER AND PISTON**

Install:
- gasket (cylinder) 1
- cylinder 2

**CAUTION**
- Always use a new gasket.

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Install:
- gasket (cylinder head)
- cylinder head 1
- spark plug 2

**CAUTION**
- Always use a new gasket.
- The hump side of gasket should be installed toward the cylinder head.

**NOTE**
- Fasten the nuts clockwise.

Tightening specification
- Head bolts --> 188 inch pounds
- Cam bolts --> 220 inch pounds
- Cam cover --> 144 inch pounds
- Chain tensioner --> 120 inch pounds

**NOTE**
Always apply red lock tight when installing cam bolts.
ENGINE ASSEMBLY

Install:
- drive sprocket

-exhaust muffler

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CARBURETOR REMOVAL

Remove:
- fuel hose
- vacuum hose
- carburetor cover
- screw (carburetor body)

NOTE
Be certain fuel is shut off and drain fuel from bowl.
ASSEMBLY
Apart from assembling the carburetor according to the reverse order of removal, note the following.

Install:
- carburetor body

NOTE
- Be sure to fit the collar 1 of the carburetor into the slot 2 of the intake elbow.

REED VALVE REMOVAL
Remove:
- carburetor

See CARBURETOR REMOVAL Section.
Remove:
- mudguard 1
Remove:
- intake elbow 2
- reed valve
- gasket

INSTALLATION
Apart from installing according to the reverse order of removal, note the following.

Install:
- gasket
- intake elbow 1
- mudguard 2

NOTE
- Always use a new gasket.

Bolt (of intake elbow): 9N·m

HANDLEBAR
REMOVAL
- Remove the front brake lever and disconnect the front brake cables.
- Remove the throttle housing cover screws and the housing.
- Remove the handlebar grip from the handlebar.
- Disconnect the throttle cable and remove the throttle lever if necessary.
10. BRAKE AND DRIVE MECHANISM

WARNING
- Grease on the brake linings reduces stopping power. Keep grease off the linings.

FRONT BRAKE INSPECTION
- Remove the front wheel. (Refer to FRONT WHEEL)
- Remove the cotter pin and axle nut.
- Pull the brake drum off the brake panel.
- Measure the brake lining thickness.
  SERVICE LIMIT: 1.5 mm
- Replace the brake linings if they are thinner than the service limit.

NOTE
- Always replace the brake linings in pairs, right and left, to assure operation.
- Measure the brake drum I.D.
  SERVICE LIMIT: 86.0 mm
Apply grease to the dust seal lips and install the dust seals and collar.

**BRAKE PANEL REMOVAL**

Pry the shoe spring off the brake shoe anchor pin and remove the spring and brake shoes.

**NOTE**
- Make the shoes to indicate their original positions before removing them.

Install the tie-rod and tighten the castle nuts to the specified torque while holding the ball joint.
TORQUE: 40-55N·m

Install the cotter pins.

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**REAR BRAKE REMOVAL**

**WARNING**
- Grease on the brake linings reduces stopping power. Keep grease off the linings.

Remove the left rear wheel.
Remove the axle collar.
Remove the rear brake cable nuts.
Remove the rear brake set plate.
Remove the rear brake.
Remove the brake lining lock pins.
Remove the brake linings.
Remove both caliper mounting bolts and caliper.

**NOTE**
- If the lining wear indicator nearly touches the brake disc, replace.

Remove the brake disc assembly.
Check the brake disc.
If worn, damaged or deformed, replace the brake disc.
Not as specified - replace.
Min. Thickness Limit: 3.0 mm
**Brake Disc Holder Inspection**

Measure the key slot for damage, and the engagement with rear axle. If faulty, replace.

Remove the NUT. Remove the drive chain.

**Drive Mechanism**

Remove the right rear wheel, safety cover, and axle collar.

Remove the driven sprocket, axle, and sprocket holder.

**Note**
- Remove the axle before removing the brake disc.

Inspect the driven sprocket for wear or damage. Replace if necessary.

Inspect the sprocket holder spline slot for wear or damage. Replace if necessary.
Turn the inner race of each bearing with your finger. The bearings should turn smoothly and quietly. Also check that the bearing outer race fits tightly in axle holder.

**NOTE**
- Replace the bearings in pairs.
- For replacement of bearings, refer to the previous contents.

**INSTALLATION**
Apply grease to the dust seal lips and install dust seals. Install the rear axle, driven sprocket and axle collar.

**REAR WHEEL INSTALLATION**
Install the rear wheel.
Install the washer.
Install the rear axle nut and tighten it to the specified torque.
TORQUE: 80-95N·m

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**11. TRANSMISSION REMOVAL AND ASSEMBLY**

1. ATV-603
2. Remove two bolts and footboard.
3. Remove exhaust pipe by removing two bolts.
4. Remove bolt.
5. Remove exhaust pipe.
6. Remove countershaft nut.
7. Remove bottom suspension bolt and nut.

8. Pick up on near frame.

9. Remove sprocket.

10. Remove chain.

11. Remove pinch bolt.

12. Remove gear selector bolts.

NOTE: splitting master link is not needed.

13. Remove two bolts and footboard.

14. Remove 3 nuts to remove engine.

15. Hold wrench on opposite side to prevent bolts from spinning.


17. Remove the bolt and cap as indicated by arrows.

18. Drain oil from engine.
19. Remove collar.
20. Remove low case bolts.
21. Tap cover gently with soft mallet.

22. Remove gear cover.
23. A
23. B Remove shaft and two forks.

25. A
25. B Remove main shaft assembly as shown.

26. A
26. B Remove reverse shaft assembly as shown.
27. A
27. B Remove countershaft assembly as shown.
18. INSTALLATION OF 3-SPEED TRANSMISSION

1. REMARK:
Please take notice the parts indicated by arrow having LEFT and RIGHT direction.

1.A. Camshaft assembly.

1.B. Remove camshaft assembly and install new one provided.

2.A. Countershaft assembly

2.B. Install countershaft assembly as shown.
3.A. Reverse shaft
When replacing this gear be certain convex side of gear is facing outward towards cover.

3.B. Install reverse shaft as shown.

4.A. Install main shaft assembly as shown

5.A. Install both shift forks and alignment shaft.

5.B. Install both original shaft forks and shaft

6. Remove washer from shift drum to see index washers.

7. Line up index marks as shown.

8. After index marks are aligned replace washer. Current position will be Neutral.

9. Replace gasket (Insure both dowel pins are in place)

10. Install gear cover with two longer bolts (m6 x 50) as shown.

11. Install remaining 8 bolts (m6 x 40) and tighten in a star pattern.
12. Install O-Ring.
14. Install spacer (chamfering inside)

15. Sprocket (w/markings outside)
16. Install sprocket (w/markings outside) and tighten nut.
17. Loosen hex screw to remove conical knob from shifter.

18. Install gear indicator using two phillips screws. NOTE: New indicator only has 3 positions.
19. Install shifter into the Neutral position without turning the shifter shaft.
20. Install pinch bolt.

21. Test speeds (R, N, D) shifter and sprocket together for correct operation, shift to N position to check for 360° rotation.
22. Install conical knob and tighten hex bolt.
23. Install and tighten drain bolt.
24. Add oil
25. Install ball bearing.
26. Install tensioner spring.
27. Install bolt and tighten oil fill plug.
29. Install 3 engine bolts.
30. Tighten 3 nuts.
31. Pick up rear of frame.
32. Place chain back on sprocket.
33. Adjust chain.
34. Install and tighten rear suspension bolt.
35. Tighten exhaust bolts at cylinder.
13. Carburetor Cleaning

1. Remove the four screws that hold the bowl to the carburetor.
2. Remove the bowl.
3. Remove the main jet and pilot jet.
4. Remove air screw and throttle screw.
5. Remove slide housing top.

5. Wash or soak main jet, pilot jet, air screw, and throttle screw with solvent. Then, blow through all orifices in order to remove all obstructions. Use fine wire if necessary to complete this task.

Note: It is important to use a solvent that is not harmful to plastic.
7. Clear the following passages with solvent and/or air. Use fine wire if necessary to complete this task.

Note - Reverse procedure for reassembly. Be certain not to pinch diaphragm in cover when installing.