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 concise 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 carries out all adjustments, maintenance, and repair.

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

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Dinli Metal Industrial Co., Taiwan
1. Model Identification .......................................................... 3
2. Front Brake Inspection And Adjustment .......................... 5
3. Rear Brake Inspection And Adjustment ....................... 6
4. Front & Rear Shock Absorbers ..................................... 7
5. Steering Mechanism Inspection And Adjustment .......... 8
6. Transmission Inspection And Adjustment ..................... 9
7. Engine Disassembly ................................................... 10
8. Engine Separation ....................................................... 14
9. Carburetor Removal .................................................. 33
10. Brake And Drive Mechanism ....................................... 37
11. Transmission Removal And Assembly ....................... 43
12. Installation Of 3-Speed Transmission ......................... 49
13. Installation Of 4-Speed Transmission ......................... 57
14. Clean Carburetor ....................................................... 59
15. Wiring Diagrams ....................................................... 61

MODEL IDENTIFICATION

Frame Number

Engine Number
2. FRONT BRAKE INSPECTION AND ADJUSTMENT

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 brake 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 - 20mm.

(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.
3. REAR BRAKE INSPECTION AND ADJUSTMENT

1. Check

(1) Brake disc:
- Worn/damaged → replace
- Not as specified → replace
- Min. Thickness limit : 3.0 mm

4. FRONT & REAR SHOCK ABSORBERS

1. Check the front shock absorbers

   - Movement
     - Raise and drop the handlebar up and down several times.
     - If the movement has trouble or leaks, check.

2. Rear shock absorber inspection

   - Movement
     - Press the handlebar and seat, and shake up and down several times.
     - If the rear shock absorber has trouble or leaks, check.
STEERING MECHANISM INSPECTION AND ADJUSTMENT

1. Set the vehicle on a level surface.
2. Remove the vehicle body with a work stand to raise the front wheel and front axle off the ground.
3. Check:
   - Hold the handlebar and front wheel with both hands, move left and right.
   - Loosen, tighten the lock nuts of steering shaft, handlebar clamp, and ball joint arm.

   - 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

4. Turn the handlebar left and right. If it is hard to move, remove the steering shaft assembly. Check the sleeve and lubricate the joint parts of the steering shaft.

6. TRANSMISSION INSPECTION AND ADJUSTMENT

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

   (2) Sprocket
      - Check the sprocket
      - Worn/deformed → replace
      - If dry, apply grease or lubricant to the sprocket or drive chain.

   (3) Adjust
      - Loosen the lock nut of rear axle bearing seat assembly and adjust the adjusting nut to make the drive chain tight as specified.
      - Then tighten the lock nut of the bearing seat to the specified torque.

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

CARBURETOR
Remove:
-oil pump hose ①
carburetor assembly ②

HOSES, CABLES AND WIRES
Remove: ①
coil wire ①

Remove:
oil pump cable ①

Remove:
muffler lock screw ①
remove muffler

Remove:
-NUT ①
Remove:
drive sprocket
-NUT ②

Remove:
battery
ENGINE SEPARATION

Lever, gear shift

Remove:
Bolt ①
Bolt ②

COVER, GEAR

Remove:
-NUT ①
-Bolt ②
-Gear assembly ①
-Gasket ②
-Screw ①
8. ENGINE SEPARATION

CYLINDER HEAD, CYLINDER AND PISTON

Do not dismantle the engine. To repair cylinder head, cylinder and piston, only the following parts are to be removed:
- Headers
- Footrest
- Carburetor

Remove:
- mudguard (1)

Remove:
- cylinder baffle shroud (1)

Pull out the flange (0) of the cylinder baffle shroud from the preformed holes (2) of the left crankcase.

Remove:
- intake elbow (1)
- reed valve
- spacer

Remove:
- cylinder (1)
- cylinder gasket (2)

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

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

Remove:
- circlip of piston pin (1)

- Block the open end of the crankcase with clean cloth to prevent the circlip (1) dropping into the crankcase.
Remove:
- O-ring
- Nut (clutch hub)

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

Remove:
- Rear belt pulley assembly
- V-belt
- Gasket

*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*

Remove:
- Fan
- O-ring

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**STARTER CLUTCH**

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:
- Bush
- Starter wheel
- Washer
- Idle gear
- Washer
MAGNETO

Remove:
- needle bearing 1
- washer 2

Special puller is needed to remove flywheel.

OIL PUMP

To inspect and repair the oil pump, only the following parts are to be removed. It is not necessary to dismantle the engine.
- fenders
- air cleaner
- fan baffle shroud
- oil pump cable

Remove:
- oil pump 1

Remove:
- washer 1
- worn gear 2
STARTER MOTOR

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 1

CRANKCASE (RIGHT)

Remove:
- Screws
- Fixed plate 1

Remove:
- Crankcase (right) 2

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 cast or brake during removal.

When inspecting rod assy:

On crankshaft check for any movement up and down, if so replace.

some side-to-side play is normal.

Before assembly, clean cases thoroughly.

No gasket is used here, sealant only.

After gluing, put certain dowel pins in place.

Always replace both crank seals once you remove crank assy.

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**INSPECTING PARTS BEFORE ASSEMBLY**

Crankcase separating procedures:

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
Scratched/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

OIL PUMP
Inside abrasion of pump or breakdown of inside mechanism may lead to a
different output of lubricant than that designed by the factory. However, this
situation is rare. If the output of the pump is abnormal, check the following item.

Check:
- oil inlet and drain pipes ①
  Stuffed/ruptured ➞ blow through or replace
- O-ring ②
Check:
- drive worm of oil pump ③
- driven worm of oil pump ④
Depressed/abraded/damaged ➞ replace

BEARING AND OIL SEAL
Check:
- bearings (all parts of engine)
After cleaning and lubricating, see inside race of the bearings.
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

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

STARTER CLUTCH

Install:
- Washer 1
- Bearing 2

- Apply molybdenum disulfide engine oil to the gear hub.

Install:
- Washer 1
- Idle gear 2
- Washer 3
- Starter gear 4
- Bush 5
Install:
- starter clutch ①
- fixed plate ②

NOTE:
- Apply grease to the friction face.
- Apply only the minimum amount of lubricant to the pulleys in the swivel section.

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.

Install:
- collar ①
- whole set of slide disk ②

NOTE:
- Make sure that O-ring is seated in the link slot.
- Use a new O-ring.

Install:
- sector gear assembly ①
- return spring ②
- bush ③
- plate washer ④
- circlip ④
Hook:
- return spring

Install:
- spring clip ①
- starter pinion ②

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

Install:
- dowel pin
- left crankcase cover ①

- Fasten clockwise.

Install:
- shock absorber pad
- kick lever

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

CYLINDER HEAD, CYLINDER AND PISTON

Install:
- gasket (cylinder) ①
- cylinder ②

- Always use a new gasket.

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

- Always use a new gasket.
- The bump side of gasket should be installed toward the cylinder head.
- Fasten the nuts clockwise.
Install:
- gasket
- reed valve
- intake elbow

- Use a new gasket.

ENGINE ASSEMBLY

Install:
- drive sprocket
- exhaust muffler

9. CARBURETOR REMOVAL

Remove:
- air box screws
- air box covers

Remove:
- air cleaner

Remove:
- gasoline pipe
- vacuum pipe
- oil drain pipe (of oil pump)
- carburetor cover
- screw (carburetor body)

- Block the open end of the oil drain pipe to prevent the lubricant from draining out.

Remove:
unplug cable that is attached to automatic choke

NOTE
- Go to pages 59 and 60 for carburetor maintenance procedure.
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 of the carburetor into the slot 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
- reed valve
- intake elbow ①
- mudguard ②

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.
• Remove the rear brake lever and disconnect the rear brake cable.
• Disconnect the handgrip switch wire from the handlebar by removing the wire bands.
• Remove the left handlebar switch holder by removing the two screws.
• Remove the handlebar grip.

• Remove the shield by removing the screws attached to it.

• Remove the handlebar clamp by removing the clamp bolts.
• Remove the handlebar.

10. BRAKE AND DRIVE MECHANISM

• 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: 1.5mm
• Replace the brake linings if they are thinner than the service limit.

• Always replace the brake linings in pairs, right and left, to assure even 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.

**REAR BRAKE REMOVAL**

- 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.

- 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 sprocket before removing the drive chain.

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, if necessary.
- Check the operation of bearings and install new ones if necessary.

**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**

**11. TRANSMISSION REMOVAL AND ASSEMBLY**

1. ATM-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.

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 mainshaft assembly as shown.

26. A

26. B Remove reverse shaft assembly as shown.

27. A

27. B Remove countershaft assembly as shown.
28.A  
28.B Remove shift shaft.  
29. Remove shiftlock tensioner bolt.

(Remove tensioner spring.  
31. Remove ball bearing with magnet.  
32. When removal is completed, scrape gasket material from both case or cover.

12. INSTALLATION OF 3-SPEED TRANSMISSION
NOTE: If you are going to continue using 4 speed transmission, skip this section and proceed to page 57. However, 3 speed upgrade is recommended.

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

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

NOTE: If removed make certain gear is facing correct direction.

2A. Countershaft assembly  
2B. Install countershaft assembly as shown.
3A. Reverse shaft
   Original shaft and gears remain, do not replace unless worn.

3B. Install reverse shaft as shown.

4A. Mainshaft assembly.
   NOTE: New assembly has worn drive gear for speedo.

3. Replace mainshaft assy with new one provided.

5A. Shaft forks and shaft.

5B. Install both original shift forks and shaft.

6. Remove washer from main shaft to see index marks.

7. Line up index marks as shown.

8. After index marks are aligned, replace washer.

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 new gear indicator provided with two bolts.
NOTE: New indicator only has 3 positions.
19. Install new shifter with new one provided.
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 near of frame.
32. Place chain back on sprocket.

33. Adjust chain.
34. Install and tighten rear suspension bolt.
35. Tighten exhaust bolts at cylinder.
36. Install rear exhaust bolt.

37. Install L footboard and bolts.

38. Install R footboard and bolts.

Completion

13. INSTALLATION OF 4-SPEED TRANSMISSION

REM:ARK:
Please take a notice the parts indicated by arrow having LEFT and RIGHT direction.

1A. Camshaft assembly

1B. Install camshaft assembly as shown.

2A. Counter shaft assembly

2B. Install countershaft assembly as shown.

NOTE: When replacing gears make certain counter gear facing correct direction.
14. CLEAN CARBURATOR

1. Remove the four screws that hold the Bowel to the Carburetor.
2. Remove the bowel
3. Remove the Main Jet and Pilot Jet.
4. Remove Air Screw and Throttle Screw
5. Remove Throttle Compartment.

6. 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 plastics.
7. Clear the following passages with solvent and/or air. Use fine wire if necessary to complete this task.

15. WIRING DIAGRAM
1. DL 603 (No REVERSE MODEL)