

## Barossa - Barossa SANYANG NCA250. - WORKSHOP MANUAL ENGINE

### PREFACE

This shop manual describes the technical feature and servicing procedures for the SANYANG NCA250.  
All information, illustrations, directions and specifications included in this publication are base on SANYANG NCA250.  
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SANYANG INDUSTRY CO.,LTD.  
SERVICE DIVISION

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#### SERVICE RULES:

- (1) Use new packings, gaskets, O-rings and cotter pins space and clipes whenever reassembling.
- (5) Clean all removed parts in or with solvent, and lubricate their sliding surfaces upon disassembly.
- (2) When tightening bolts or nuts, begin on center or

larger diameter bolts and tighten them in criss-cross pattern in two or more steps if necessary. (6) Coat or fill parts with specified grease where specified.

(3) Use genuine SANYANG parts and lubricants or those equivalent. When parts are to be reused, they must be inspected carefully to make sure they are not damaged or deteriorated and in good usable condition.

(7) Upon assembling, check every possible part for proper installation and movement or operation.

(4) Use special tool when use of such a tool is specified.

(8) Work safely and give your work your undivided attention. Exchange signals as frequently as possible when a work involves two or more workers. Do not run the engine unless the shop or working area is well ventilated.

Symbol Marks:

: Apply engine oil.

NOTE: Things must be noticed.

CAUTION: Things that could cause damage to the engine parts.

: Apply grease.

WARNING: Things that could cause damage to the person or partner.

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### SPECIFICATIONS

ITEM NCA250

DIMENSIONS Overall length 2180mm

Overall width 960mm

Overall height 1130mm

Wheel base 1480mm

Ground clearance 160mm

Dry weight 175kg

FRAME Type Double pipe

Front suspension and travel Telescope 165mm

Rear suspension and travel Swing arm 63mm

Front tire size and tire pressure 90/90-18 2.25Kg/C

Rear tire size and tire pressure 130/90-15 2.50Kg/C

Front brake Disk

Rear brake Drum

Fuel capacity 14 liter

Fuel reserve capacity 2.0 liter

Caster angle 26 °

Front fork oil capacity 160c.c

ENGINE Type Air cooled 4 stroke O.H.C. engine

Cylinder arrangement Double cylinders 15° incline from vertical

Bore & stroke 53 x 53mm

Displacement 233.9c.c.

Compression ratio 9.5:1

Oil capacity 1.1 ~1.5 liter (1.3 liter for change)

Intake valve opens 0° BTDC

closes 30° ABDC

Exhaust valve opens 35° BBDC

closes -5° ATDC

Valve clearance IN. 0.08mm

EX . 0.10mm

Idle speed 1500 rpm

DRIVE TRAIN Clutch Wet multi-plate type

Transmission 5-speed international

Primary reduction ratio 3.83

Gear ratio I 2.46

II 1.777

III 1.333

IV 1.083

V 0.913

Final reduction ratio 2.285

Gearshift pattern 1; 2; 3; 4; 5

ELECTRICAL Ignition system C.D.I. unit

Ignition timing "F" mark BTDC 15° ± 2° /1500rpm

Full advance BTDC 29.5° ± 2° /4000rpm

Starting system Electrical motor starter

Alternator A.C. generator

Battery capacity 12V 9AH

Fuse 20A; 15A; 10A; 4A

Spark plug A6RTC

Spark plug gap 0.6~0.7mm

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### ENGINE

TIGHTEN LOCATION Q'TY THREAD DIA(mm) TORQUE(kgf.cm)

Oil plate pan screw 3 8 80~120

Crank shaft bolt 5 16 180~220

Crank shaft nut 1 16 70~110

Cylinder head nut 3 7 80~120  
Cylinder head cover 2 6 80~120  
Cam shaft sprocket bolt 10 6 80~120  
Crank case bolt 7 6 80~120  
L crank case cover bolt 1 6 80~120  
Fly wheel bolt 3 10 400~500  
A.C.G. sprocket bolt 4 5 50~70  
Start motor bolt 10 6 80~120  
R crank case cover bolt 8 6 80~120  
Cam shaft holder nut 1 12 180~220  
Primary drive gear nut 3 16 400~500  
Oil pump flat bolt 1 6 80~120  
Clutch lock nut 1 16 400~500  
Shift drum stopper 1 6 80~120  
Shift cam bolt 1 6 80~120  
Cam chain adjuster screw 6 6 80~120  
Drain oil bolt 8 150~250  
Gear shift spindle bolt 6 100~150

## FRAME

TIGHTEN LOCATION Q'TY THREAD DIA(mm) TORQUE(kgf.cm)

Front wheel nut 1 14 600~800  
Rear wheel nut 1 14 1000~1200  
Rear fork pivot nut 1 14 800~1000  
Engine hanger nut 3 10 450~550  
Handle pipe upper holder bolt 4 8 180~ 250  
Steering stem nut 1 22 600~900  
Front fork nut 1 22 400~500  
Rear shock absorber 4 10 300~400  
Rear brake torque link 2 8 150~200  
Front fork top bridge 2 7 100~140  
Rear fork bottom bridge 2 8 240~300  
Final drive sprocket 1 10 270~330  
Seat bolt 4 6 200~250  
Drive sprocket bolt 2 6 100~140

## STANDARD TORQUE

TYPE TORQUE(kgf.cm) TYPE TORQUE(kgf.cm)

5 mm bolt, nut 45~60 5 mm bolt 35~50  
6 mm bolt, nut 80~120 6 mm bolt 70~110  
8 mm bolt, nut 180~250 6 mm flange bolt, nut 100~140  
10 mm bolt, nut 300~400 8 mm flange bolt, nut 240~300  
12 mm bolt, nut 500~600 10 mm flange bolt, nut 350~450

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Torque specifications listed below for respective locations.

## TROUBLE SHOOTING

### A. HARD START OR CANNOT START

start engine with choke closed engine knocks, but no  
starting follow the starter keypoints to re-start inspection adjustment cause  
loosen carburetor drain  
screw, check inner side for  
gasoline  
enough gasoline supplied for carburetor  
remove spark plug, insert it  
into plug cap, check the spark by touching engine  
grid

test cylinder  
compression spark plug jump spark weak or no spark  
normal compression pressure too low or no  
pressure  
engine dose not fire  
spark plug dry no gasoline in the tank  
fuel tube between gasoline tank and  
carburetor clogged.  
float chamber fuel tube clogged  
gasoline cover air hole clogged  
fuel filter clogged  
fuel filter screen clogged  
gasoline auto fuel cup faulty  
spark plug faulty  
fouled spark plug  
CDI unit faulty pulse coil faulty  
high voltage coil cable open or  
short high voltage coil open or short  
main switch faulty  
A.C.G. faulty  
Battery faulty

valve too tight, no gap  
valve seat faulty  
cylinder, piston, piston ring  
faulty cylinder gasket leak  
valve burnt out  
valve timing faulty  
crankcase leak when wmpress

Fuel tube clogged  
muffler clogged  
auto air cut poor action inlet duct has air in  
ignition timing incorrect  
carburetor fuel adjusting screw set faulty  
air cleaner clogged symptom  
no gasoline supplied  
for carburetor  
remove and check the  
spark plug again  
spark plug wet carburetor fuel level too high  
auto air cut poor action throttle excessively  
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## B. ROTATION ROUGH (LACKS POWER)

symptom inspection adjustment cause  
start engine and slightly  
apply fuel  
engine speed up engine speed can't up  
adjust ignition timing use timing tester  
valve ad juster poor ignition timing correct ignition timing incorrect  
valve clearance correct valve coearance incorrect  
compression pressure check  
compression normal pressure to low  
carburetor block check  
remove spark plug no clogged block air cleaner clogged  
fuel tube clogged air hole on the fuel tank cap blocked exhaust tube clogged auto air cut faulty carburetor vacuum  
diaphragm worn auto fuel cup faulty  
faulty CDI unit  
faulty A.C.Generator  
fualty valve seat  
cylinder, piston worn gasket leak valve timing incorrect  
piston ring worn  
  
remove and clean  
remove dirt  
spark plug improper heat range  
spark plug clearance misadjustment no fouled  
discolored dirt and color change valve clearance misadjustment  
valve seat worn  
check crankcase oil level  
for too much or dirt  
oil lever normal oil too much too much oil

too little oil oil no replacement

check cylinder head lubrication

normal abnormal oil tube clogged lean projection from oil pump

engine too hot

no overheating overheated piston, cylinder worn lean mixture poor gasoline carbon in burning chamber too much

ignition timing too early (C.D.I. faulty)

clutch slip

high speed

continue working

no knock shock knocks carbon in burning chamber too