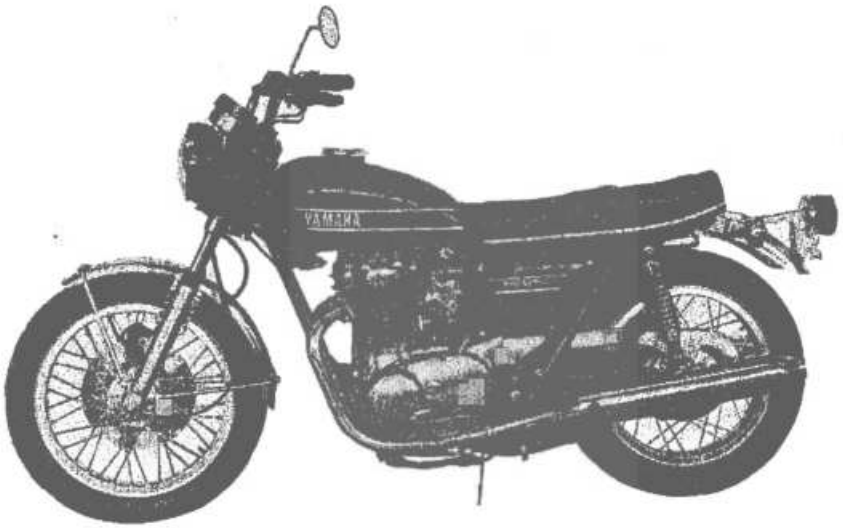
YAMAHA
SUPPLEMENTARY
SERVICE MANUAL
TX650A



YAMAHA MOTOR CO., LTD.

447-28197-10

FOREWORD

This Supplementary Service Manual for TX650A has been published to supplement the Service Manual for the XSIB, XS2 and TX650 and includes changes in specifications and addition to the data.

For complete information on service procedures, it is necessary to use this Supplementary Service Manual together with the Service Manual for the XSIB, XS2 and TX650. Page numbers shown in brackets are identical with page numbers of the Service Manual for the XSIB, XS2 and TX650.

(Page 1) GENERAL SPECIFICATIONS

General Specifications should be read as follows:

1) Correction

Item		XS(IB) (2), TX650	TX650A
Engine	Valve Clearance	Cold IN: 0.15 mm. (0.006 in.) EX: 0.30 mm. (0.012 in.)	Cold IN: 0.10 mm. (0.004 in.) EX: 0.15 mm. (0.006 in.) Warm IN: 0.15 mm. (0.006 in.) EX: 0.20 mm. (0.008 in.)
Carburetor	Main Jet Needle Jet Pilot Fuel Jet	#130 4JN19-4th stage #42.5	#127.5 4N8-4th stage #45
Battery	Model Manufacturer Capacity Dimension	(12N12-4A-1) x 1 G.S. 12V. 12 AH. 5.36 x 2.36 x 5.16 ins. (134 mm. x 59 mm. x 129 mm.)	YB14L YUASA 12V. 14 AH. 5.27 x 3.50 x 6.53 ins. (134 mm. x 89 mm. x 166 mm.)
Chassis	Fuel Tank Capacity	3.7 U.S. gals. (14.0 lits.)	3.96 U.S. gals. (15.0 lits.)
Dimension	Wheelbase	55.5 ins. (1,410 mm.)	56.5 ins. (1,435 mm.)

2) Addition

Item		Addition	
Engine	Idling R.P.M.	1,000 ~ 1,200 r.p.m.	
Transmission	Oil	SAE 20W/40	

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4) –c) Specifications should be read as follows:

	Cam Lift (A)		Base Circle Diameter (B)	
	Standard Valve	Wear Limit	Standard Valve	Wear Limit
Intake	39.99 ± 0.05	39.75	32.19 ± 0.05	32.12
Exhaust	40.03 ± 0.05	39.79	32.24 ± 0.05	32.17

(All dimensions given in millimeters.)

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17) –a) Revision of Specifications

Valve spring specification chart has been changed as follows:

	OUTER	INNER
Diameter of wire	4.2 mm.	2.9 mm.
Direction of winding	Right Hand	Left Hand
Total winding	6.25	8.0
Free Length	42.55 mm.	42.0 mm.
Installed Length (Valve Closed)	37 mm	35.0 mm.
Installed Pressure	17.7±1.25 kgs. (39.02±2.75 lbs.)	10±0.7 kgs. (22.05±1.54 lbs.)
*Compressed Length (Valve Open)	27.5 mm.	25.5 mm
Compressed Pressure	57.5±4.0 kgs. (126.78±8.82 lbs.)	27.2±1.9 kgs. (59.97±4.19 lbs.)
*Measured without collar. Tolerance: ± 3%		

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25) Chain Tensioner has been changed as follows:

25) Chain Tensioner

a) Remove the cap, lock nut and ajustor bolt.
The vibration damper attached to the crankcase can be removed after the cylinder is pulled out.

b) It is not necessary to remove the bolts from the chain tensioner holder. Should the holder be removed, use a new gasket with both faces coated with Yamaha Bond No. 4 when the holder is re-installed.

c) To adjust the chain, remove the cap and loosen the tensioner lock nut. Turn the adjustor in until the push rod is flush with the end of the adjustor. Tighten the lock nut and install the cover.

d) Check the chain tension every 2000 miles. (In case of a new chain, check after the initial 250 miles and after 500 miles.)

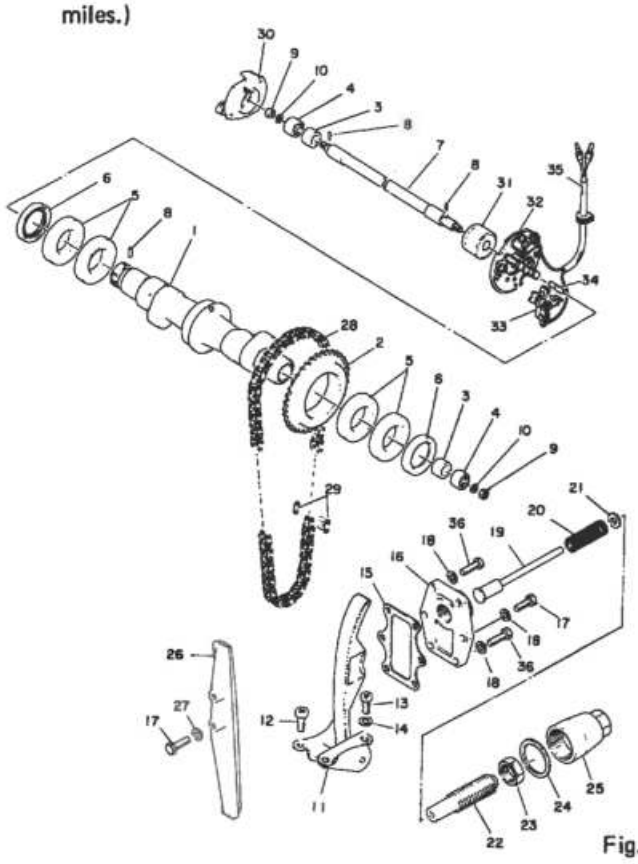


Fig. 1

1. Cam shaft
2. Sprocket
3. Breaker shaft bushing
4. Labyrinth seal
5. Bearing (16005 special)
6. Oil seal (S-25-40-6)
7. Breaker shaft
8. Dowel pin (3-7)
9. Nut
10. Spring washer
11. Stopper 2 guide
12. Reamer bolt
13. Pan head screw
14. Spring washer
15. Tensioner case gasket
16. Tensioner holder
17. Bolt
18. Plain washer
19. Rod
20. Spring
21. Damper
22. Bolt
23. Lock nut
24. O-ring (2.4-31.5)
25. Cap
26. Stopper 1 guide
27. Holder gasket
28. Chain (DK219FT 106L)
29. Chain joint
30. Governer assembly
31. Cam
32. Breaker plate assembly
33. Contact breaker
34. Lubricator
35. Lead wire 1
36. Bolt 2

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13) Clutch Installation

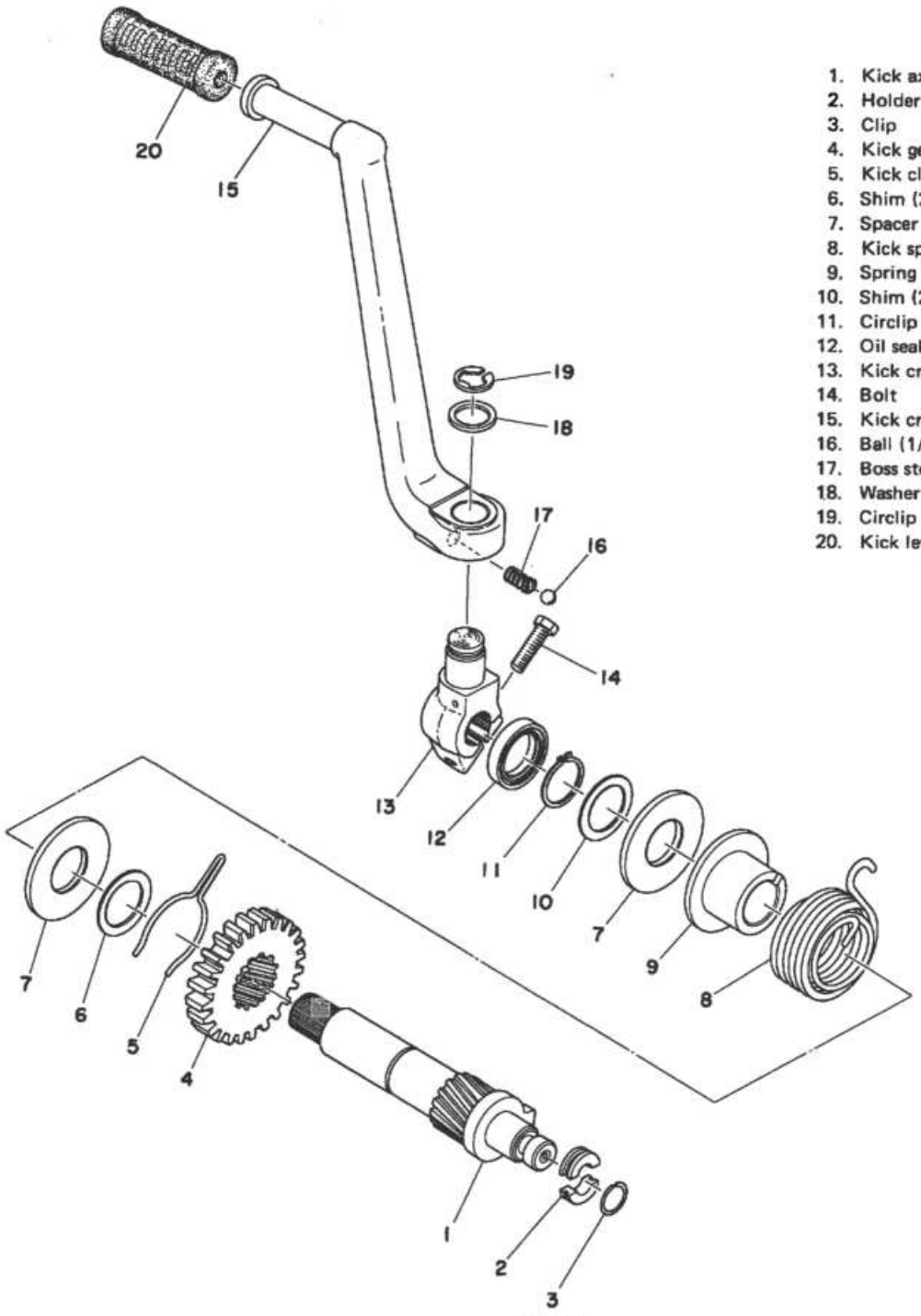
Item a) has been changed as follows:

a) Reverse the clutch removal sequence.
Tighten the clutch boss lock nut to 5 – 8 m-kgs. (36.17 – 57.82 ft-lbs.)

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17) Kick Starter Assembly

The illustration and construction of Kick Starter Assembly has been changed as follows:



1. Kick axle assembly
2. Holder
3. Clip
4. Kick gear (25T)
5. Kick clip
6. Shim (25.5-35-0.5)
7. Spacer (25.4-53-4)
8. Kick spring
9. Spring guide
10. Shim (25.2-36-1.0)
11. Circlip
12. Oil seal (SD-25-35-7)
13. Kick crank boss
14. Bolt
15. Kick crank
16. Ball (1/16 inch)
17. Boss stopper spring
18. Washer
19. Circlip
20. Kick lever cover

Fig. 2

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c) Air Filter

The description and illustration of Air Filter has been changed as follows:

1) Two air filters (foam rubber) are housed in separate metal cases located under the seat. Remove both mounting bolts and take both case caps off.

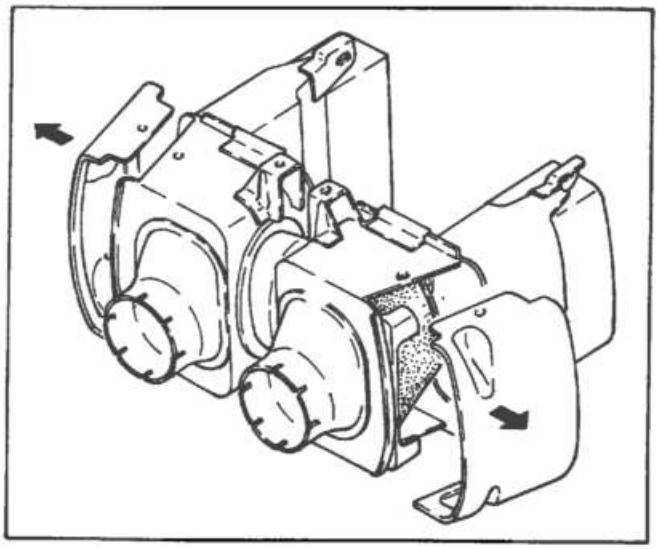


Fig. 3

2) This model is equipped with a washable oil impregnated foam rubber air filter.
It must be removed and cleaned at least once a month, more often if the motorcycle is ridden frequently in the dirt.
Wash the foam rubber filter thoroughly in solvent so that all dirt is removed.
Squeeze all the solvent out. Pour oil onto the filter (Motor oil 10W/30), work it completely in, and then squeeze out excess oil.

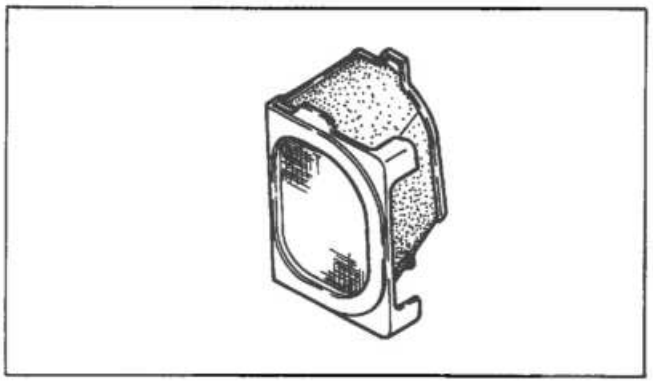


Fig. 4

(Page 80)

Front Forks (XS2, TX650)

Illustration and construction of Front Forks has been changed as follows:

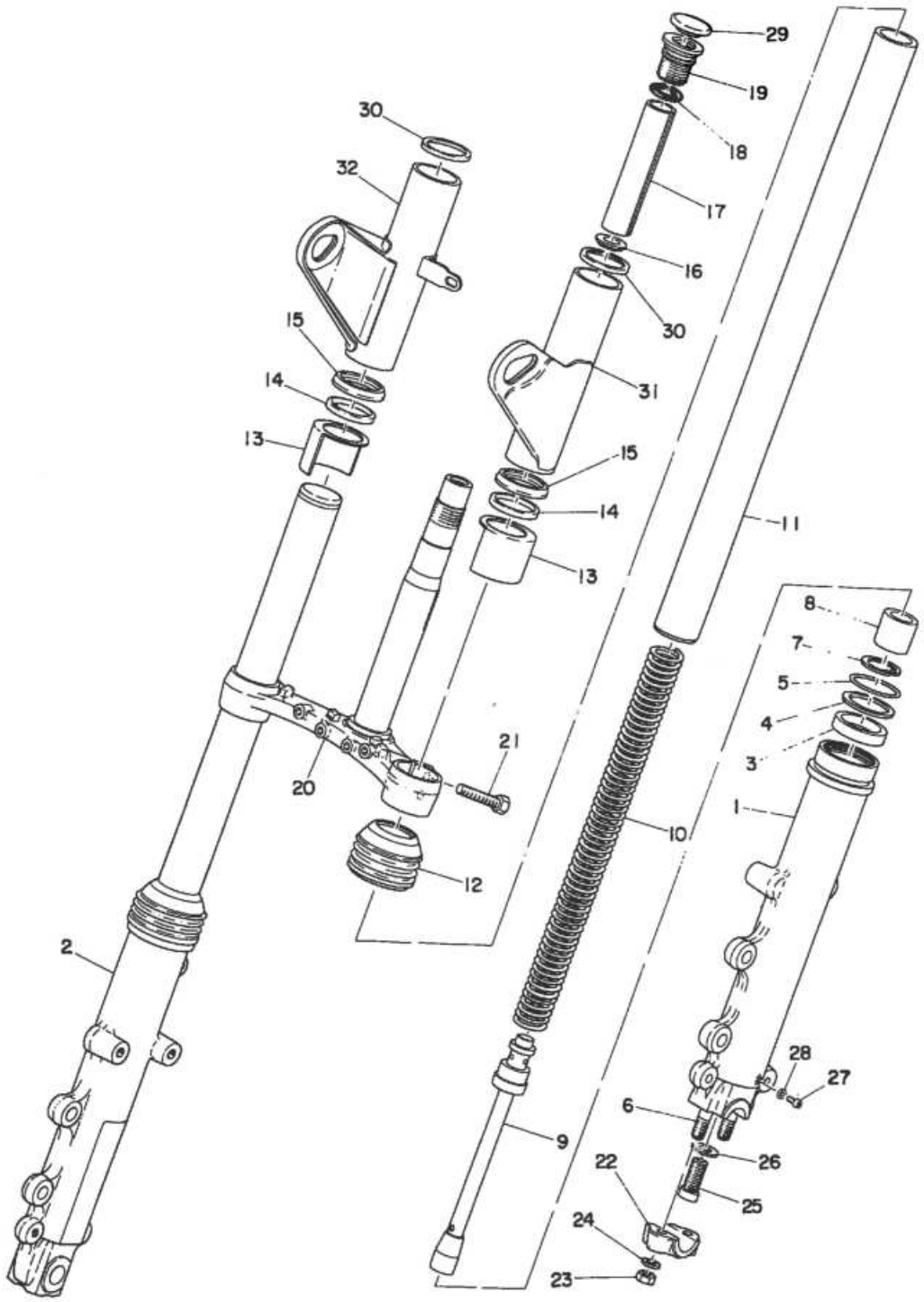


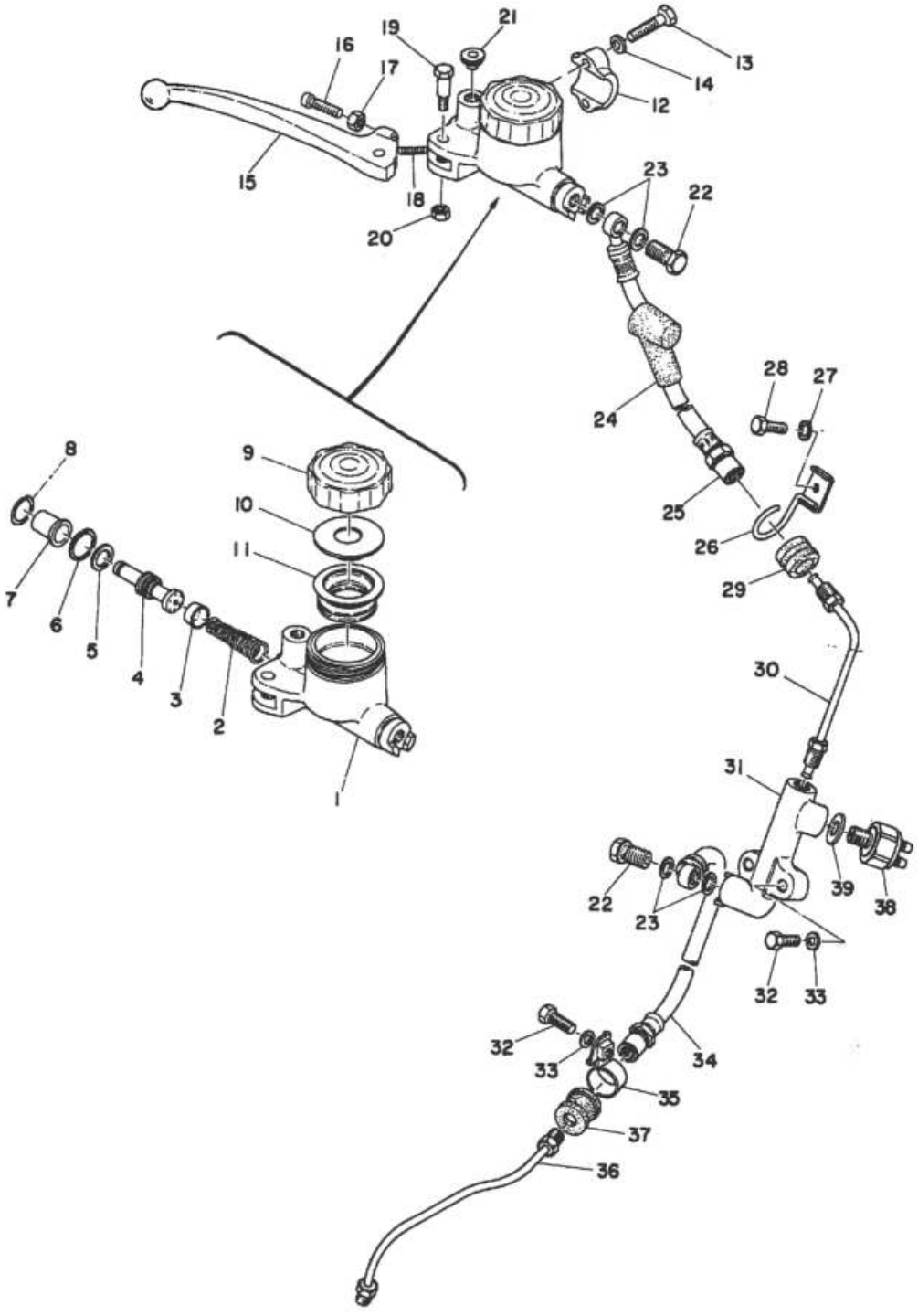
Fig. 5

1. Outer left tube
2. Outer right tube
3. Oil seal
4. Oil seal washer
5. Oil seal circlip
6. Bolt
7. Circlip
8. Piston
9. Cylinder complete
10. Spring
11. Inner tube
12. Dust seal
13. Outer cover
14. Packing
15. Cover under guide
16. Spring upper seat
17. Spacer
18. O-ring
19. Cap bolt
20. Under bracket complet
21. Bolt
22. Axle holder
23. Nut
24. Spring washer
25. Bolt
26. Packing
27. Drain plug
28. Packing
29. Cap
30. Cover upper guide
31. Upper left cover
32. Upper right cover

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1) Construction

Illustration and Construction of Disk Brake has been changed as follows:



1. Master cylinder body
2. Conical spring
3. Cylinder cup 1
4. Piston assembly
5. Spacer
6. Circlip
7. Master cylinder boot
8. Boot stopper
9. Reservoir cap
10. Diaphragm plate
11. Reservoir diaphragm
12. Master bracket
13. Bolt
14. Spring washer
15. Right lever
16. Adjusting screw
17. Adjusting nut
18. Lever return spring
19. Lever fitting screw
20. Nut
21. Blind plug
22. Oil bolt
23. Oil bolt washer
24. Master cylinder boot
25. Brake hose 1
26. Brake hose 3 holder
27. Spring washer
28. Bolt
29. Brake hose rubber
30. Brake pipe 3
31. Joint
32. Bolt
33. Spring washer
34. Brake hose 2
35. Brake hose 2 holder
36. Brake pipe 1
37. Brake hose rubber
38. Front stop switch assembly
39. Special washer

Fig. 6

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2) Master Cylinder

Item a) should be changed as follows:

a) Remove the brake lever.
(Take care not to misplace the brake lever return spring.)

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A) ELECTRIC STARTER (XS2, TX650)

"1) Construction" should be changed as follows:

1) Construction

The starter motor is located under the crankcase.

An idler gear is attached to the shaft. Torque from the motor, during operation, is transmitted through the idler gear and the three reduction gears to the splined gear (gear 4). The gear works in the same manner as the splined kick gear, moving out to engage with the gear mounted on the outer half of the right half crankshaft. In this fashion, torque from the starter motor is transmitted to the crankshaft. As the engine starts, gear 4 is automatically disengaged from the crankshaft. The starter motor itself is a series-winding, 12 volt D.C. motor which draws 150 amps or less initially. A safety relay is incorporated within the starting circuit to automatically open the circuit when the engine fires. This provides for immediate disengagement of the starter motor gear train and, in addition, prevents the starter motor from over-revolving through a no-load condition as gear 4 disengages.

Item a) of "Operation" should be deleted and Items b) and e) should be changed as follows:

b) As the cell switch closes, this creates current flow in the starter motor solenoid's windings and the solenoid closes.

e) Finally, the engine runs fully on both cylinders.

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2) Specifications

"NOMINAL ENGINE R.P.M." should be read as follows:

300 r.p.m. at 75A. or less

ERRATA

NEW E
Stoplig
Should

Referring to Fig. 7 on page 9 of "YAMAHA TX650A Supplementary Service Manual," it is requested to make correction as follows.

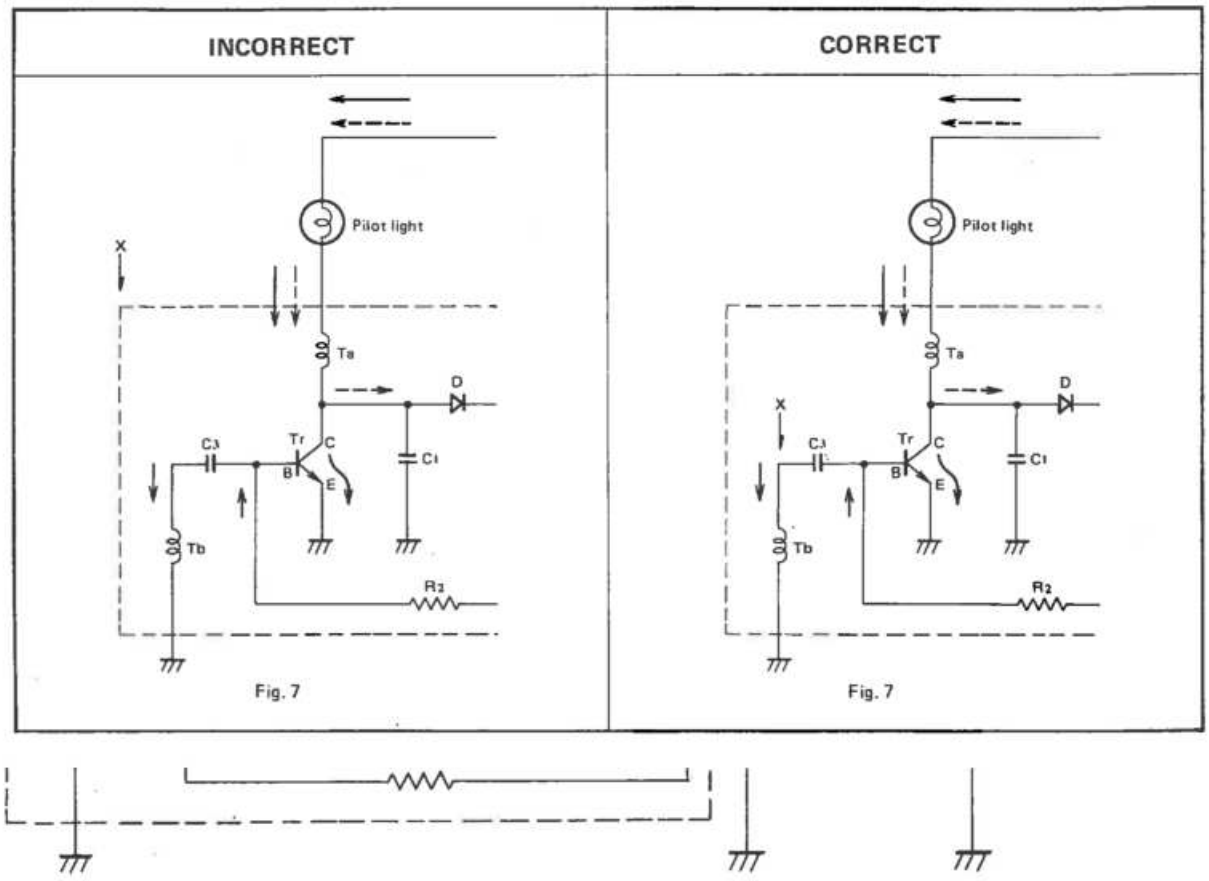


Fig. 7

1) Operation

a) When the stop switch closes (the stoplight is good), current flows through the following route:

Battery → Fuse → Main Switch → Stop Switch → R_2 → B (Transistor) → E (Transistor) → Ground

When the base current flows as described above, current flows from Pilot Light → Ta → C (Transistor) → E (Transistor) → Ground. Thus the pilot light lights up.

b) When the stop switch opens (the stoplight burns out), current flows through the following route:

Battery → Fuse → Main Switch → Pilot Light → Ta → D → R_1 → C_2 → Ground

As the condenser (C_2) begins to store current, the voltage at "A" increases. The moment that it reaches a specific level, C_2 begins to discharge, and the base current flows from the transistor. In other words, current flows from Pilot Light → Ta → C (Transistor) → E (Transistor) → Ground, and thus the pilot light turn off.

When C_2 has discharged, the voltage at A drops, and thus the base current stops flowing. Therefore, the current from the pilot light also decreases, and as a result, current is induced between "Ta" and "Tb", flowing in the direction opposing the magnetic flux. The voltage at "X" drops, and no current flows through the transitors. By repeating this operation, the pilot light goes on and off.

c) When the Stoplight burns out, but the pilot light is in good condition:

Stoplight burns out	Brake pedal is applied	Pilot light is on.
	Brake pedal is not applied	Pilot light turns on and off.
Stoplight is good	Brake pedal is applied	Pilot light is on.
	Brake pedal is not applied	Pilot light is off.

Alarm System

Rear Brake Lining

* If the rear brake lining wears more than 2 mm., the pilot light lights up.

1) Operation

a) If the brake lining wears more than 2 mm.: When the brake pedal is depressed, the cam shaft rotates and causes the cam shaft shim, having a cutaway (shaded area), to rotate, thus pushing the alarm switch buttom. This makes the pilot light turn on, warning the rider that the brake lining has worn beyond limits.

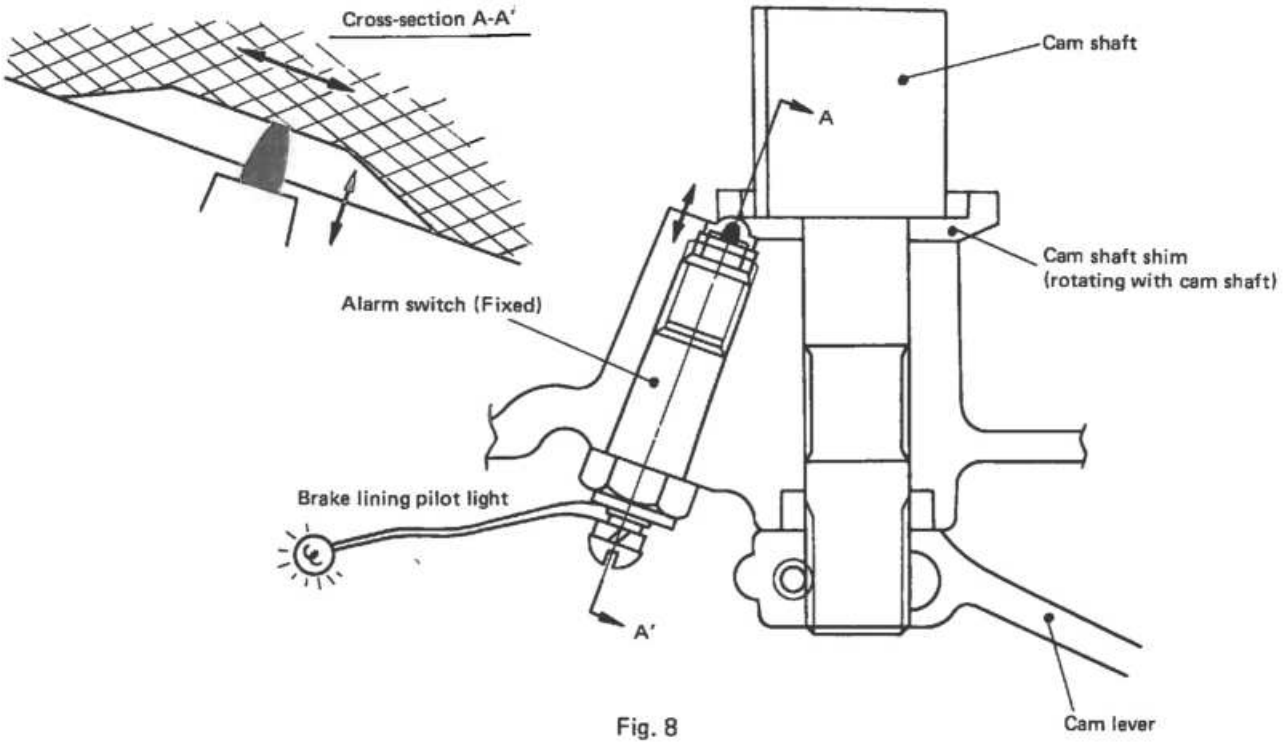


Fig. 8

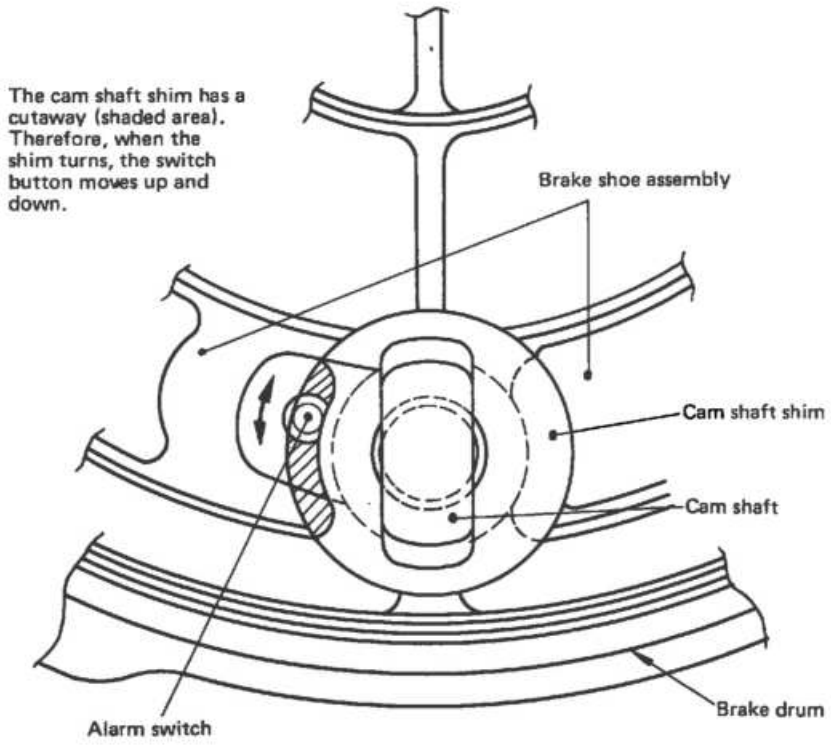


Fig. 9

b) When the main switch is turned on and the starter button is depressed, the brake lining wear warning light should go on. If not, the light is assumed to be burnt out.

Brake lining alarm system

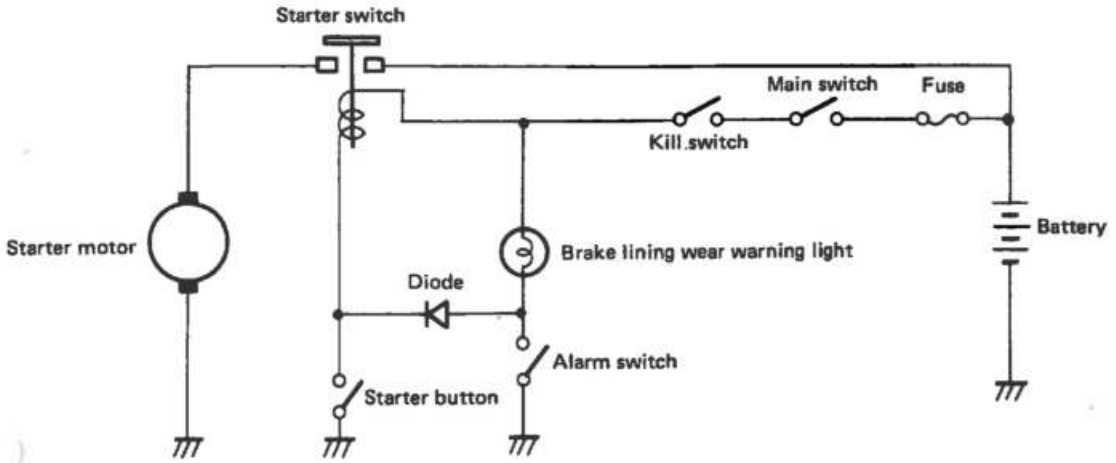
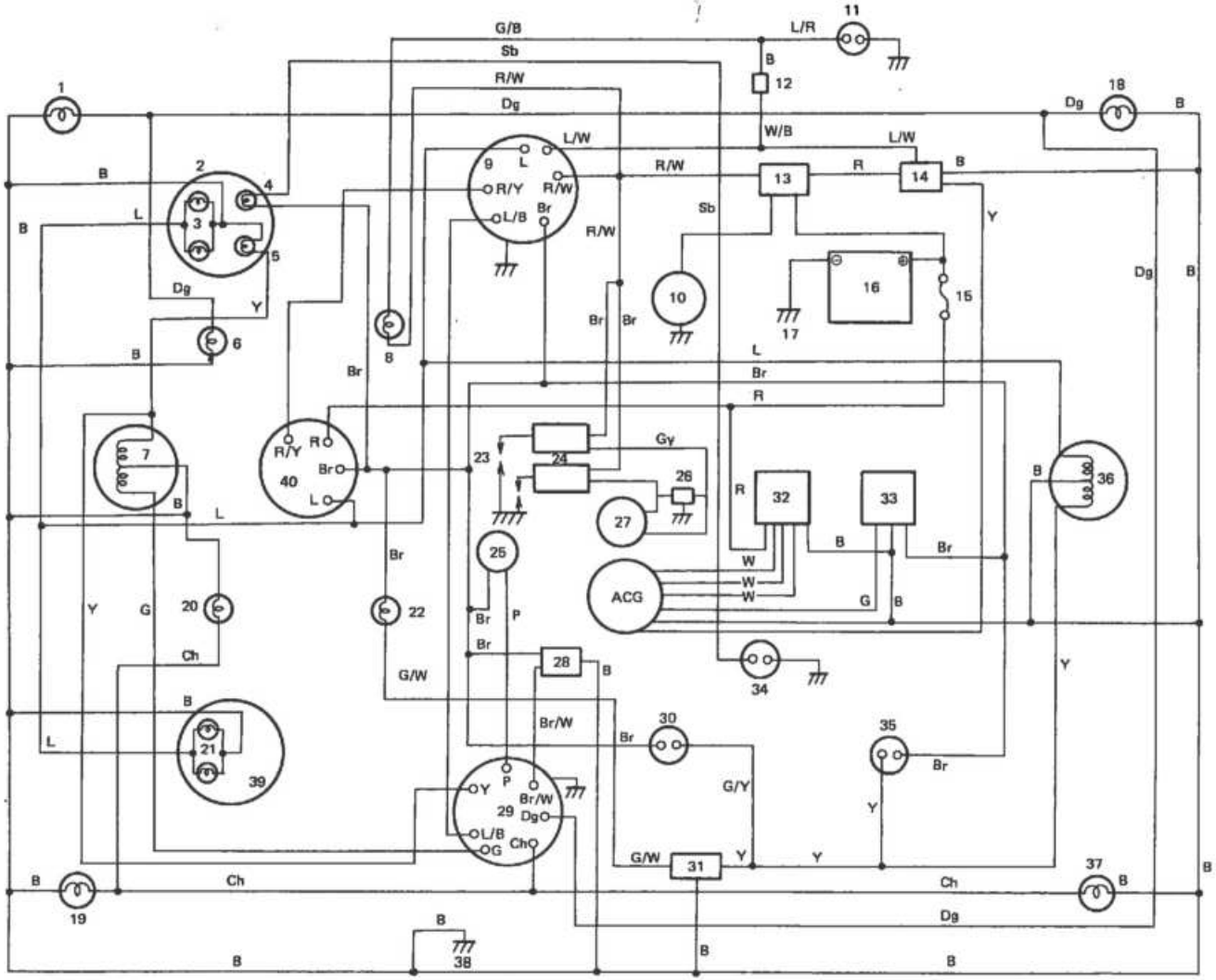


Fig. 10

TX650A Wiring Diagram



G/B	Green Black	R/Y	Red/Yellow
B	Black	W	White
L	Blue	G/Y	Green/Yellow
Y	Yellow	L/W	Blue/White
G	Green	R/W	Red/White
Br	Brown	P	Pink
R	Red	Br/W	Brown/White
G/W	Green/White	Dg	Dark green
W/B	White/Black	Ch	Chocolate
L/R	Blue/Red	Sb	Sky blue
L/B	Blue/Black		

1. Front flasher light (R) 12V./27W.
2. Tachometer
3. Lamp 12V./3W.
4. Neutral pilot light 12V./3W. x 2
5. High beam pilot light 12V./3W.
6. Flasher pilot light 12V./3W.
7. Headlight 12V. 50/40W.
8. Brake lining pilot light 12V./3W.
9. Handle switch (R)
10. Starter motor
11. Brake lining alarm switch
12. Diode
13. Starter switch
14. Safety relay
15. Fuse
16. Battery YB14L
17. Ground to chassis
18. Rear flasher light (R) 12V./27W.
19. Front flasher light (L)
20. Flasher pilot light 12V./3W.
21. Light 12V./3W. x 2
22. Stoplight warning light 12V./3W.
23. Spark plug
24. Ignition coil
25. Horn
26. Condenser
27. Contact breaker
28. Flasher relay
29. Handle switch (L)
30. Front stop switch
31. Lamp checker
32. Rectifier
33. Regulator
34. Neutral switch
35. Rear stop switch
36. Tail/stoplight 12V., 32/3W.
37. Rear flahser light 12V./27W.
38. Ground to chassis
39. Speedometer
40. Main switch

Main switch

	R	Br	R/Y	L	Key
OFF					Removable
I	○	○	○		Unremovable
II	○			○	Removable

Dimmer switch

	Y	L/B	L
Hi	○	○	
Lo		○	○

Flasher switch

	Ch	Br/w	Dg
L	○	○	
N			
R		○	○

Horn switch

	P	Ground
OFF		
ON	○	○

Starter switch

	L/W	Ground
OFF		
ON	○	○

Light switch (R)

	L/B	R/Y	L
OFF			
ON	○	○	○

Kill switch

	Br	R/w	L/w
OFF			
RUN	○	○	○
OFF			

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