YAMAHA

XVZ13DS(C)~DE(C)
VENTURE ROYALE
('86~'93)
Service Manual



LIT-11616-XV-14

YAMAHA

XVZ13DA
XVZ13DAC

SUPPLEMENTARY SERVICE MANUAL

LIT-11616-07-27

3JJ-28197-10

FOREWORD

This Supplementary Service Manual has been prepared to introduce new service and new data for the XVZ13DA/DAC. For complete information on service procedures, it is necessary to use this Supplementary Service Manual together with following manual:

XVZ13DS/DSC SERVICE MANUAL: LIT-11616-04-96
XVZ13DU/DUC, XVZ13U/UC SUPPLEMENTARY SERVICE MANUAL: LIT-11616-06-06

XVZ13DA/XVZ13DAC
SUPPLEMENTARY SERVICE MANUAL
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NOTICE

This manual was written by the Yamaha Motor Company primarily for use by Yamaha dealers and their qualified mechanics. It is not possible to put an entire mechanic's education into one manual, so it is assumed that persons using this book to perform maintenance and repairs on Yamaha motorcycles have a basic understanding of the mechanical concepts and procedures inherent in motorcycle repair technology. Without such knowledge, attempted repairs or service to this model may render it unfit to use and/or unsafe.

This model has been designed and manufactured to perform within certain specifications in regard to performance and emissions. Proper service with the correct tools is necessary to ensure that the motorcycle will operate as designed. If there is any question about a service procedure, it is imperative that you contact a Yamaha dealer for any service information changes that apply to this model. This policy is intended to provide the customer with the most satisfaction from his motorcycle and to conform with federal environmental quality objectives.

Yamaha Motor Company, Ltd. is continually striving to improve all models manufactured by Yamaha. Modifications and significant changes in specifications or procedures will be forwarded to all Authorized Yamaha dealers and will, where applicable, appear in future editions of this manual.

NOTE:

This Service Manual contains information regarding periodic maintenance to the emission control system for the XVZ13DA/DAC. Please read this material carefully.

TECHNICAL PUBLICATIONS
SERVICE DIVISION
MOTORCYCLES GROUP
YAMAHA MOTOR CO., LTD.

HOW TO USE THIS MANUAL

PARTICULARLY IMPOTANT INFORMATION

This material is distinguished by the following notations.

⚠ The Safety Alert Symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

⚠WARNING Failure to follow WARNING instructions could result in severe injury or death to the motorcycle operator, a bystander, or a person inspecting or repairing the motorcycle.

CAUTION: A CAUTION indicates special precautions that must be taken to avoid damage to the motorcycle.

NOTE: A NOTE provides key information to make procedures easier or clearer.

MANUAL FORMAT

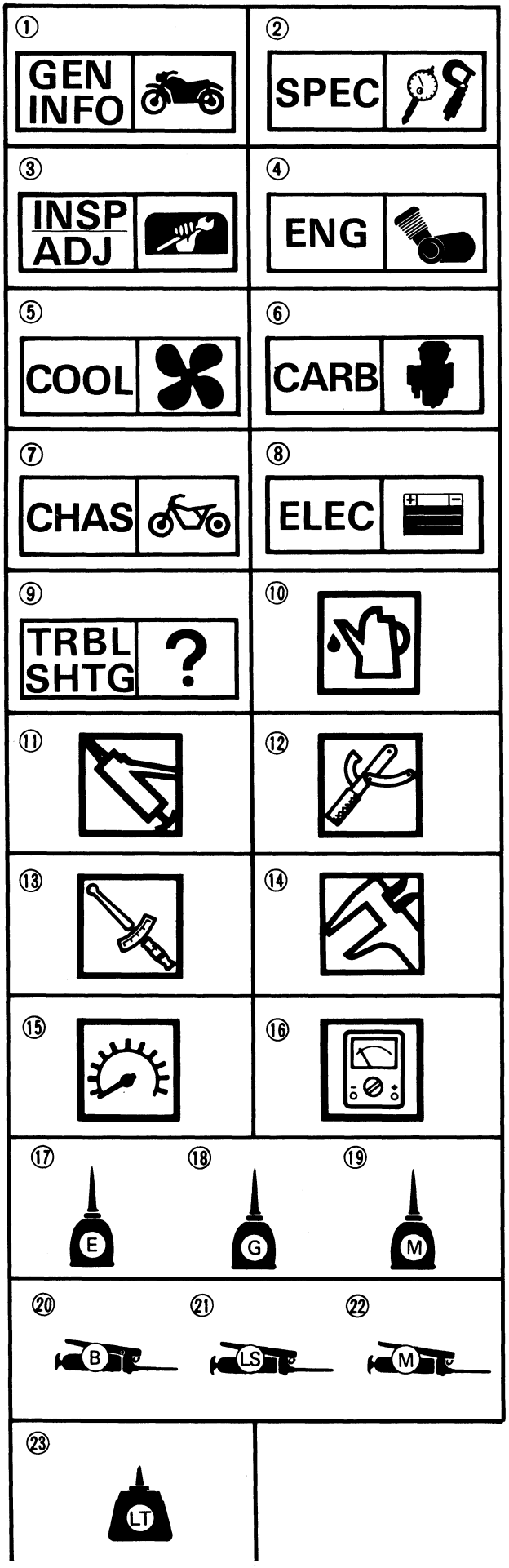
All of the procedures in this manual are organized in a sequential, step-by-step format. The information has been compiled to provide the mechanic with an easy to read, handy reference that contains comprehensive explanations of all disassembly, repair, assembly, and inspection operations.

In this revised format, the condition of a faulty component will precede an arrow symbol and the course of action required will follow the symbol, e.g.,

- Bearings:
  Pitting/Damage → Replace.

EXPLODED DIAGRAM

Each chapter provides exploded diagrams before each disassembly section for ease in identifying correct disassembly and assembly procedures.



ILLUSTRATED SYMBOLS (Refer to the illustration)

Illustrated symbols ① to ⑨ are designed as thumb tabs to indicate the chapter's number and content.

① General information
② Specifications
③ Periodic inspection and adjustment
④ Engine
⑤ Cooling system
⑥ Carburetion
⑦ Chassis
⑧ Electrical
⑨ Troubleshooting

Illustrated symbols ⑩ to ⑯ are used to identify the specifications appearing.

⑩ Filling fluid
⑪ Lubricant
⑫ Special tool
⑬ Tightening
⑭ Wear limit, clearance
⑮ Engine speed
⑯ Ω, V, A

Illustrated symbols ⑰ to ㉓ in the exploded diagram indicate grade of lubricant and location of lubrication point.

⑰ Apply engine oil
⑱ Apply gear oil
⑲ Apply molybdenum disulfide oil
⑳ Apply wheel bearing grease
㉑ Apply lightweight lithium-soap base grease
㉒ Apply molybdenum disulfide grease
㉓ Apply locking agent (LOCTITE®)

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MOTORCYCLE IDENTIFICATION 1

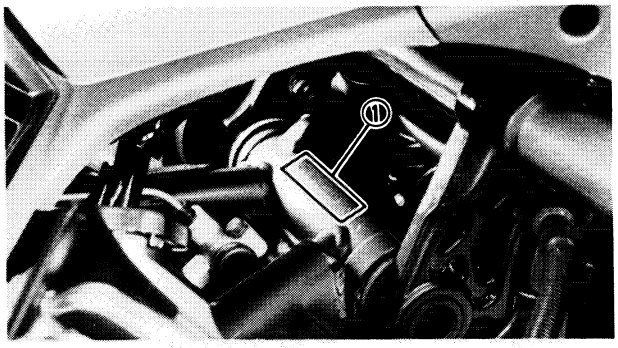
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GENERAL INFORMATION



MOTORCYCLE IDENTIFICATION

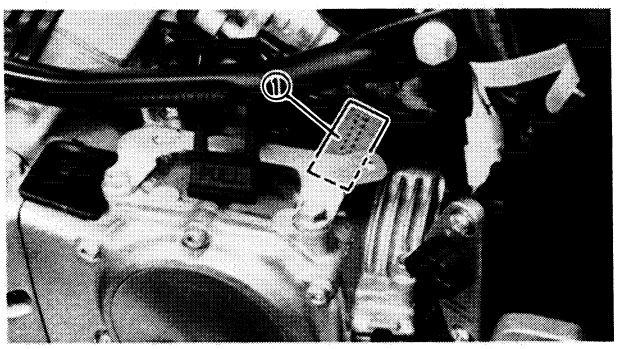
VEHICLE IDENTIFICATION NUMBER

The vehicle identification number ① is stamped into the steering head pipe.

NOTE:

The vehicle identification number is used to identify your motorcycle and may be used to register your motorcycle with the licensing authority in your state.

Starting Serial Number:
For USA:
XVZ13DA JYA1NLE0*LA033101
XVZ13DAC ... JYA1UNC0*LA007101
For CDN:
XVZ13DA ... JYA1UMN0*LA008101



ENGINE SERIAL NUMBER

The engine serial number ① is stamped into the left side of the engine.

NOTE:

The first three digits of these numbers are for model identifications; the remaining digits are the unit production number.

Starting Serial Number:
For USA:
XVZ13DA 1NL-033101
XVZ13DAC 1UN-007101
For CDN:
XVZ13DA 1UM-008101

NOTE:

Designs and specifications are subject to change without notice.

SPECIFICATIONS

GENERAL SPECIFICATIONS

Model		XVZ13DA/DAC
Model Code Number	For USA	XVZ13DA: 3JJ4 XVZ13DAC: 3JJ5
	For CDN	XVZ13DA: 3JJ6
Engine Starting Number	For USA	XVZ13DA: 1NL-033101 XVZ13DAC: 1UN-007101
	For CDN	XVZ13DA: 1UM-008101
Vehicle Identification Number	For USA	XVZ13DA: JYA1NLE0*LA033101 XVZ13DAC: JYA1UNC0*LA007101
	For CDN	XVZ13DA: JYA1UMN0*LA008101
Tire:		
Type		Tubeless
Size (F)		120/90-18 65H BRIDGESTONE L303/DUNLOP F16
Size (R)		140/90-16 71H BRIDGESTONE G508/DUNLOP K425
Wear Limit		1.0 mm (0.04 in)

MAINTENANCE SPECIFICATIONS

CHASSIS

Model		XVZ13DA/DAC
Front Wheel:		
Type		Cast wheel
Rim Size		18 x MT2.50
Rim Material		Aluminum
Rim Runout Limit:	Vertical	2 mm (0.08 in)
	Lateral	2 mm (0.08 in)
Rear Wheel:		
Type		Cast wheel
Rim Size		16 x MT3.00
Rim Material		Aluminum
Rim Runout Limit:	Vertical	2 mm (0.08 in)
	Lateral	2 mm (0.08 in)

TIGHTENING TORQUE

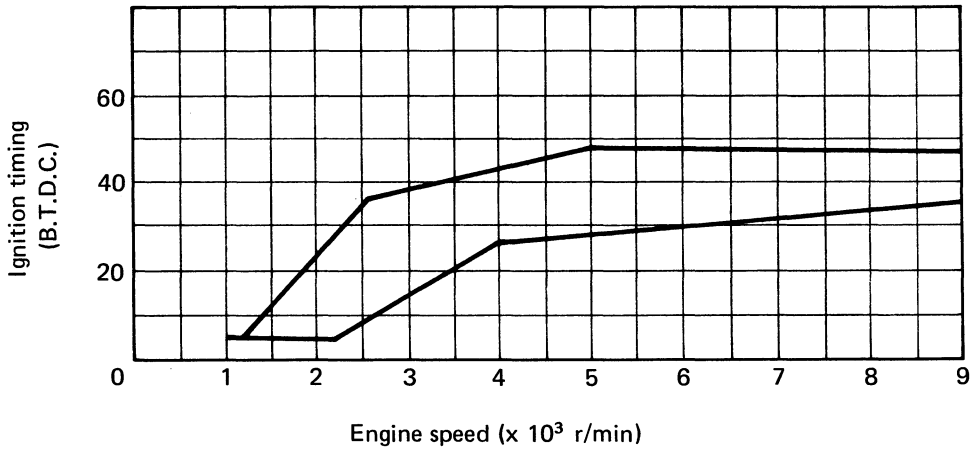
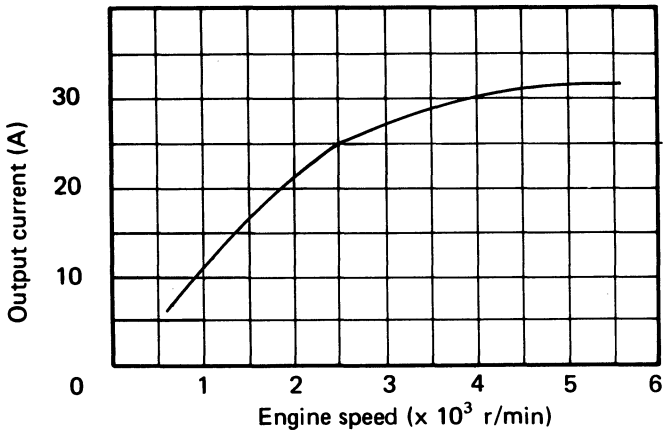
Part to be tightened	Thread size	Tightening torque			Remarks
		Nm	m·kg	ft·lb	
Front Wheel Axle	M14	105	10.5	75	
Front Axle Pinch Bolt	M8	20	2.0	14	
Under Bracket and Inner Tube	M8	17	1.7	12	
Steering Crown and Inner Tube	M8	20	2.0	14	
Steering Crown and Steering Shaft	M22	110	11.0	80	
Steering Shaft Ring Nut (Lower)	M25	50	5.0	36	Refer to NOTE
	M25	3	0.3	2.2	
Steering Shaft Ring Nut (Upper)	M25	–	–	–	
Caliper and Front Fork	M10	45	4.5	32	Front
Caliper and Bracket	M10	45	4.5	32	Rear
Caliper and Bleed Screw	M8	5	0.5	3.6	
Brake Hose Union Bolt	M10	25	2.5	18	
Clutch Hose Union Bolt	M10	25	2.5	18	
Brake Hose and Brake Pipe	M10	19	1.9	13	
Clutch Hose and Clutch Pipe	M10	19	1.9	13	
Front Master Cylinder Cap	M4	1	0.1	0.7	Brake & Clutch
Master Cylinder and Master Cylinder Bracket	M6	9	0.9	6.5	Brake & Clutch
Rear Master Cylinder and Proportioning Valve	M10	26	2.6	19	
Rear Master Cylinder and Frame	M8	23	2.3	17	
Pivot Shaft (Left) and Frame	M22	100	10.0	72	
Pivot Shaft (Right) and Frame	M25	6	0.6	4.3	
Pivot Shaft (Right) and Locknut	M25	100	10.0	72	
Front Fender and Front Fork	M8	20	2.0	14	
Handlebar Lower Holder and Handlebar					
– Pinch Bolt	M8	30	3.0	22	
– Stopper Nut	M22	125	12.5	90	
Handlebar and Handlebar Grip					
– Pinch Bolt	M6	17	1.7	12	
– Stopper Nut	M10	35	3.5	25	
Engine Bracket (Front Upper)	M10	42	4.2	30	
Engine Bracket (Front Lower)	M10	42	4.2	30	
Engine Bracket (Rear)	M12	70	7.0	50	
Engine Stay and Frame	M8	16	1.6	11	
Rear Wheel Axle and Nut	M18	150	15.0	110	
Fuel Sender and Fuel Tank	M6	5	0.5	3.6	
Relay Arm and Frame	M12	59	5.9	43	
Relay Arm and Rear Shock Absorber	M10	48	4.8	35	

NOTE:

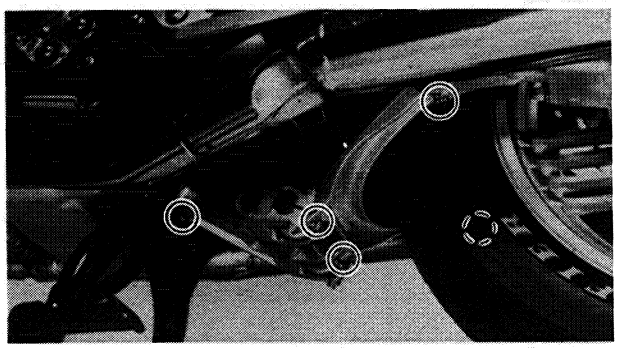
- Ring nut (lower):
  1) First, tighten the ring nut approximately 50 Nm (5.0 m·kg, 36 ft·lb) by using the torque wrench, then loosen the ring nut completely.
  2) Retighten the ring nut 3 Nm (0.3 m·kg, 2.2 ft·lb).
- Ring nut (upper):
  1) Finger tighten the ring nut.

Part to be tightened	Thread size	Tightening torque			Remarks
		Nm	m·kg	ft·lb	
Swingarm and Arm	M10	32	3.2	23	
Rear Shock Absorber and Frame	M10	32	3.2	23	
Down Tube and Frame	M10	48	4.8	35	
Footrest Bracket and Frame	M10	32	3.2	23	
Frame and Rear Frame — Upper	M10	55	5.5	40	
— Lower	M10	55	5.5	40	
Frame and Cross Bar Assembly	M8	23	2.3	17	
Footrest and Footrest Bracket	M8	30	3.0	22	
Brake Pedal	M10	30	3.0	22	

ELECTRICAL

Model	XVZ13DA/DAC
Ignition System:	
Ignition Timing (B.T.D.C.)	5° at 1,000 r/min
Advancer Type	Vacuum and electrical
	
T.C.I.:	
Pickup Coil Resistance (Color)	81 ~ 121Ω at 20°C (68°F) (Black – Orange)
T.C.I. Unit-Model/Manufacturer	T1D14-94/HITACHI
A.C. Generator:	
Model/Manufacturer	FL-130-07/HITACHI
Nominal Output	14V, 30A at 5,000 r/min
	
Stator Coil Resistance	0.26 ~ 0.35Ω at 20°C (68°F) (White – White)
Fuel Pump Control Relay:	
Model/Manufacturer	25G/OMRON

PERIODIC INSPECTION AND ADJUSTMENT



CHASSIS

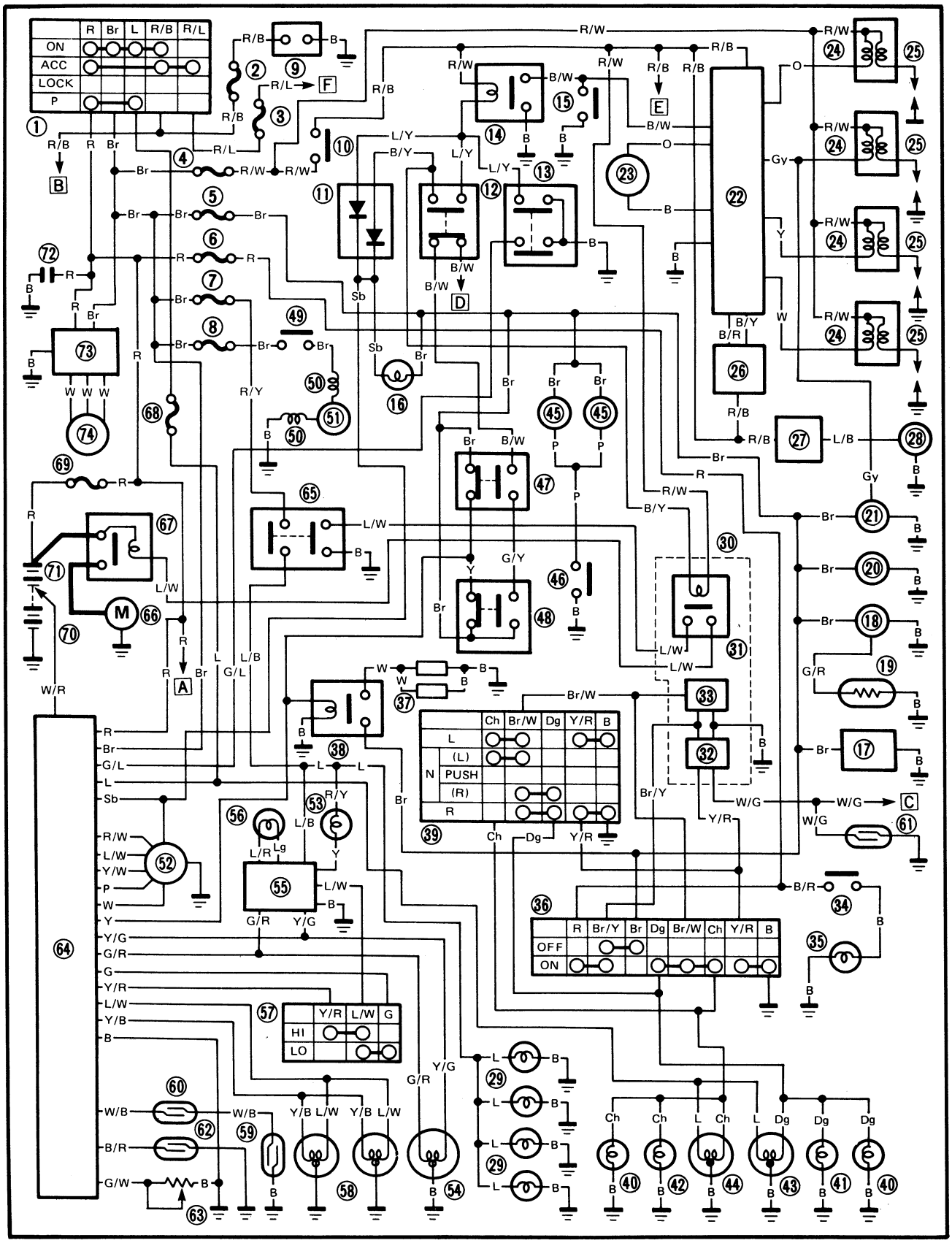
REAR SUSPENSION LINK LUBRICATION

Lubricate pivoting parts of suspension link.

	Molybdenum Disulfide Grease

ELECTRICAL

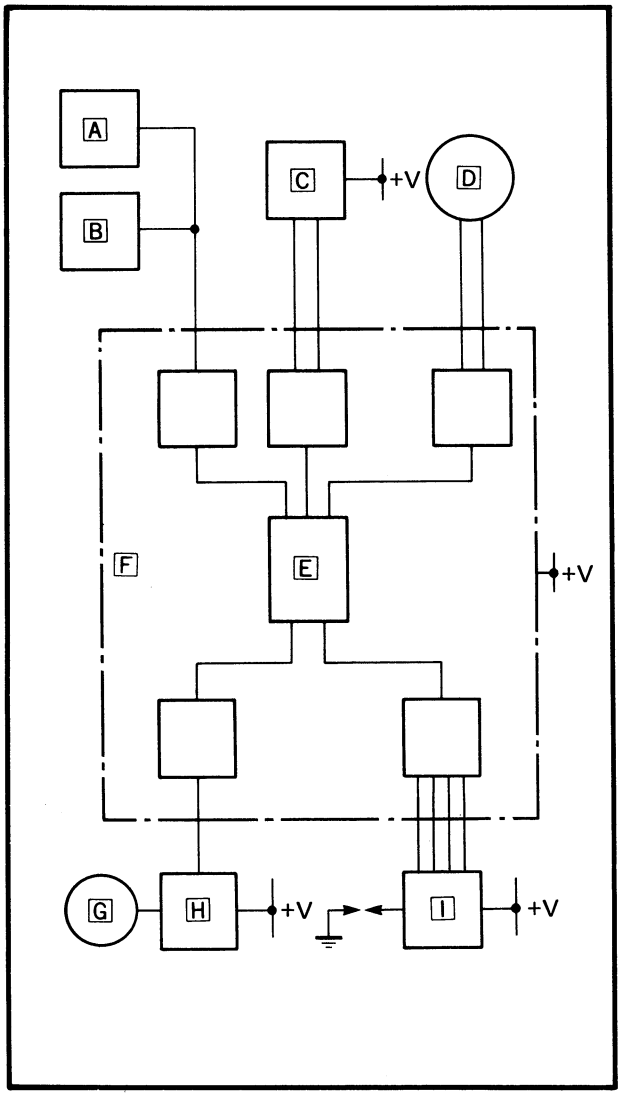
XVZ13DA/DAC CIRCUIT DIAGRAM



① Main switch
② Fuse
③ Fuse (CLASS)
④ Fuse (IGNITION)
⑤ Fuse (SIGNAL)
⑥ Fuse (HAZARD)
⑦ Fuse (HEAD)
⑧ Fuse (FAN)
⑨ Auxiliary D.C. terminal
⑩ "ENGINE STOP" switch
⑪ Diode assembly
⑫ Clutch switch
⑬ Sidestand switch
⑭ Sidestand relay
⑮ Emergency stop switch
⑯ "NEUTRAL" indicator light
⑰ Air vent control valve (For California)
⑱ Engine temperature gauge
⑲ Thermo unit
⑳ Voltmeter
㉑ Tachometer
㉒ Ignitor unit
㉓ Pick up coil
㉔ Ignition coil (#1 ~ #4)
㉕ Spark plug (#1 ~ #4)
㉖ Pressure sensor (Ignition)
㉗ Fuel pump control relay
㉘ Fuel pump
㉙ Meter light
㉚ Relay assembly
㉛ Starting circuit cut-off relay
㉜ Cancelling unit
㉝ Flasher relay
㉞ Trunk light switch
㉟ Trunk light
㊱ "HAZARD" switch
㊲ Solenoid valve (EAND)
㊳ EAND relay
㊴ "TURN" switch
㊵ "TURN" indicator light
㊶ Rear flasher light (Right)
㊷ Rear flasher light (Left)
㊸ Front flasher light (Right)/ Parking and running light
㊹ Front flasher light (Left)/ Parking and running light
㊺ Horn
㊻ "HORN" switch
㊼ Front brake switch
㊽ Rear brake switch
㊾ Thermo switch
㊿ Noise filter (Fan motor)
(51) Fan motor
(52) Shift position switch
(53) "HIGH BEAM" indicator light
(54) Headlight
(55) Reserve lighting unit
(56) "HEAD LAMP" indicator light
(57) "LIGHTS" (Dimmer) switch
(58) Tail/brake light
(59) Rear brake fluid level sensor
(60) Front brake fluid level sensor
(61) Speedometer sensor
(62) Oil level sender
(63) Fuel sender
(64) Computer monitor
(65) "START" switch
(66) Starter motor
(67) Starter relay
(68) Fuse (TAIL)
(69) Fuse (MAIN)
(70) Battery sensor
(71) Battery
(72) Condensor
(73) Rectifier with regulator
(74) A.C. Generator

COLOR CODE

B . . . . . .Black
L . . . . . .Blue
O . . . . . .Orange
G . . . . . .Green
R . . . . . .Red
P . . . . . .Pink
Y . . . . . .Yellow
W . . . . . .White
Br. . . . . .Brown
Dg . . . . . .Dark green
Ch . . . . . .Chocolate
Sb . . . . . .Sky blue
Gy . . . . . .Gray
Lg . . . . . .Light green
G/R . . . . . .Green/Red
G/Y . . . . . .Green/Yellow
B/R . . . . . .Black/Red
B/W . . . . . .Black/White
B/Y . . . . . .Black/Yellow
L/Y . . . . . .Blue/Yellow
L/B. . . . . .Blue/Black
L/W . . . . . .Blue/White
R/W . . . . . .Red/White
R/B . . . . . .Red/Black
R/Y . . . . . .Red/Yellow
W/R . . . . . .White/Red
W/G . . . . . .White/Green
W/B . . . . . .White/Black
Y/R . . . . . .Yellow/Red
Y/L . . . . . .Yellow/Blue
Br/W. . . . . .Brown/White
B/L. . . . . .Black/Blue
B/G . . . . . .Black/Green
B/Gy. . . . . .Black/Gray
L/R . . . . . .Blue/Red
L/G . . . . . .Blue/Green
R/L . . . . . .Red/Blue
Y/G . . . . . .Yellow/Green
Y/B . . . . . .Yellow/Black
Y/W . . . . . .Yellow/White
G/L . . . . . .Green/Blue
G/W . . . . . .Green/White
Br/Y . . . . . .Brown/Yellow
Br/Gy . . . . .Brown/Gray
Br/R . . . . . .Brown/Red



DIGITAL IGNiTION CONTROL SYSTEM

DESCRIPTION

The electronic ignition that sparks the engine is computer controlled and operated by the digital CPU (microprocessor). It has a pre-programed ignition advance curve.

This programed advance curve closely matches the spark timing to the engine's ignition requirements. Only one pickup coil is needed to meet the requirements of the digital ignitor unit.

The digital ignitor also includes the control unit for the electric fuel pump.

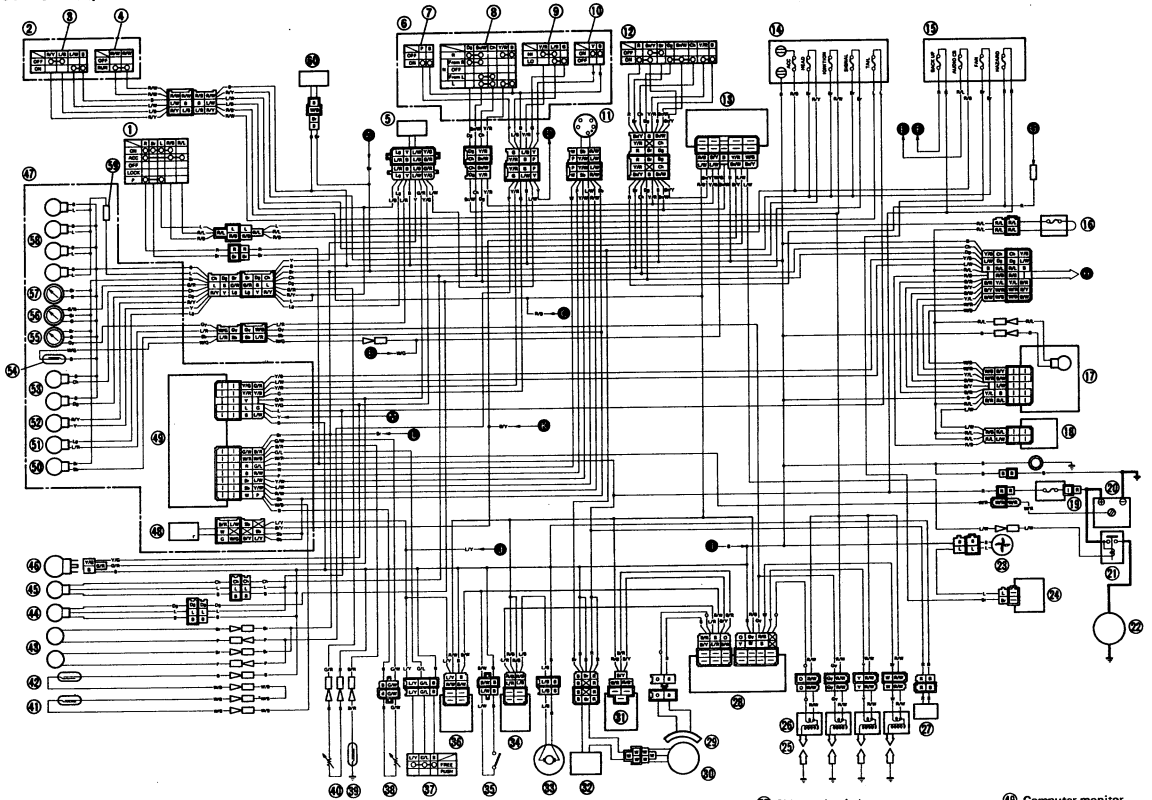
A Sidestand switch
B Emergency stop switch
C Pressure sensor
D Pickup coil
E CPU (Microprocessor)
F Digital ignitor unit
G Fuel pump
H Fuel pump control relay
I Ignition coil

OPERATION

The following operations are digitally-performed by signal from the pickup coil signal:

1. Determing proper ignition timing.
2. Sensing the engine revolution speed.
3. Determing timing for switching on ignition coil (duty control).
4. Increasing ignition coil primary current for starting the engine.
5. Sensing engine stall.
6. Preventing over-revolution of the engine.

XVZ13DA/XVZ13DAC WIRING DIAGRAM



COLOR CODE

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

① Main switch
② Handlebar switch (Right)
③ "START" switch
④ "ENGINE STOP" switch
⑤ Reserve lighting unit
⑥ Handlebar switch (Left)
⑦ "HORN" switch
⑧ "TURN" switch
⑨ "LIGHTS" (Dimmer) switch
⑩ "PTT" (Push-to-talk) switch
⑪ Shift position switch
⑫ "HAZARD" switch

⑬ Flasher relay
⑭ Fuse box
⑮ Fuse box
⑯ Fuse (CLASS)
⑰ CLASS controller unit
⑱ CLASS relay
⑲ Fuse (MAIN)
⑳ Battery
㉑ Starter relay
㉒ Starter motor
㉓ Fan motor
㉔ Thermo switch

㉕ Spark plug
㉖ Ignition coil
㉗ Condensor
㉘ Ignitor unit
㉙ Pick up coil
㉚ A.C. Generator
㉛ Pressure sensor (Ignition)
㉜ Rectifier/regulator
㉝ Fuel pump
㉞ Fuel pump control relay
㉟ Emergency stop switch
㊱ Sidestand relay

㊲ Sidestand switch
㊳ Fuel sender
㊴ Oil level switch
㊵ Thermo unit
㊶ Front brake fluid level sensor
㊷ Rear brake fluid level sensor
㊸ Horn
㊹ Front flasher light (Right)
㊺ Front flasher light (Left)
㊻ Headlight
㊼ Meter assembly
㊽ Diode assembly

㊾ Computer monitor
㊿ "NEUTRAL" indicator light
(51) "HIGH BEAM" indicator light
(52) "HEAD LAMP" indicator light
(53) "TURN" indicator light
(54) Speedometer sensor
(55) Tachometer
(56) Engine temperature gauge
(57) Voltmeter
(58) Meter light
(59) Illumination controller
(60) Air vent control valve (For California)



YAMAHA MOTOR CO.,LTD.

IWATA, JAPAN

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