

Navitas Vehicle Systems Ltd.

NAVITAS TAC 1.0

600A 48V CONTROLLER

for

AC INDUCTION MOTORS

Installation/Service Manual



INSTALLATION INSTRUCTIONS FOR:

YAMAHA® G29® Conversion (MORIC®)

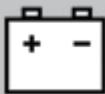
NAVITAS

INSTALLATION INSTRUCTIONS



ATTENTION:

- Before installing the controller make sure that the golf car's electrical system is working properly.
- All components such as the motor, Run/Tow switch, pedal cluster, FWD/REV switch and all wiring needs to be in good condition and operating to manufacturer's standards.
- The batteries must be in good condition and each battery must hold a charge!
- If the system is not working properly this must be repaired before installing this controller!



DANGER

FAILURE to follow the WARNINGS below can damage the Vehicle and/or cause SERIOUS INJURY OR DEATH!

Installation or Servicing of the NAVITAS 440A / 600A 48-72V Controller must be done by a trained golf car technician. Before installing or servicing of the NAVITAS Controller:

- Disconnect the main (+) positive and (-) negative cable on the vehicle's battery system.
- Make sure the **Run/Tow** switch is in the **Tow** position
- The Key is turned OFF and removed from the ignition
- The parking brake is engaged
- Before testing the controller/vehicle make sure ALL four wheels are off the ground and supported with jack stands.
- The area around the vehicle must be clear. Keep all people, children and pets away from the vehicle when installing, servicing or testing the vehicle.
- Read NAVITAS 440A / 600A 48-72V Controller Installation/Service and all warning labels before servicing or troubleshooting this Vehicle.
- The controller is sealed and cannot be opened for service. To replace the controller call your local dealer. Opening the controller will void the warranty
- Wear safety glasses and gloves when installing this controller.
- Wear a safety shield when working in or near the vehicle battery compartment.
- Use insulated tools to protect from electric burns.
- Never lay or put down tools in the vehicle battery compartment.
- Remove pre-charge resistor from contactor and discard.

INSTALLATION INSTRUCTIONS

YAMAHA G29 DC to AC Conversion



CAUTION

Disconnect all batteries before beginning installation. If the car has a run/tow switch, you must place the switch in the TOW position first!

PARTS INCLUDED

- AC Controller
- Adaptor harness
- AC 4 kW motor
- OTF programmer (optional)
- Mounting plate and hardware
- Motor phase cable
- Speed sensor/motor temperature harness
- Ring Terminal



1. Power down

- Turn off key, disconnect battery
- Put car on a stand and block wheels
- Use insulated tools
- Never use battery as workbench



To view our Installation video for Golf Cars, visit: NavitasVS.com/support

2. Remove OEM Controller / Solenoid & Mounting Plate

- Remove cables from controller
- Unclip OEM Wire Harness



Fig. 1

3. Prepare Cables

- Locate the 'Y' cable on the vehicle harness (Fig. 1). This cable consists of 2 cables crimped together into a sigle ring terminal. One side comes from the Battery Negative. The other wire is connected to the A2 on the motor. Use side cutters to cut the A2 wire at the ring terminal (Fig. 2). Then crimp the supplied ring terminal to the A2 wire (Fig. 3).



Fig. 2



Fig. 3

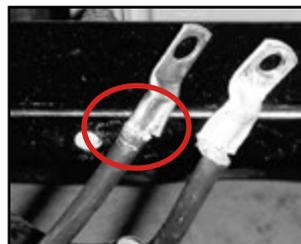


Fig. 4

INSTALLATION INSTRUCTIONS

YAMAHA G29 DC to AC Conversion cont'd

4. Install G29 Mounting Plate

- Align plate with existing holes (where OEM controller was fastened) and fasten with screws (*Fig. 5*)



Fig. 5

5. Mount Controller

- Install Navitas AC controller (*Fig. 6*).
- Re-install solenoid to plate
- Connect B- from battery, B+ from solenoid and motor phase cables to U, V, W (use new cable provided as 'W' and re-use the 2 existing motor phase cables from A1=U, A2=V) to the controller (*Fig. 6*)



Fig. 6

6. Motor Conversion

- Remove motor phase cables A1, A2 from motor
- Remove and DISCARD field cables (F1, F2)
- Remove DC motor
- Install Navitas AC motor
- Connect new speed sensor/motor temp harness to motor
- Connect motor phase wires from controller (A1 =U, A2 = V and new cable = W)
- Check cabling to make sure U, V, and W match exactly from motor to controller

7. Connect OEM Harness to Adaptor Harness

8. Install On-The-Fly Programmer (optional)

- Install OTF (optional) (see install description in RXV INSTALL instructions, p12)
- Connect OTF to the adapter module
- Zip Tie loose cables

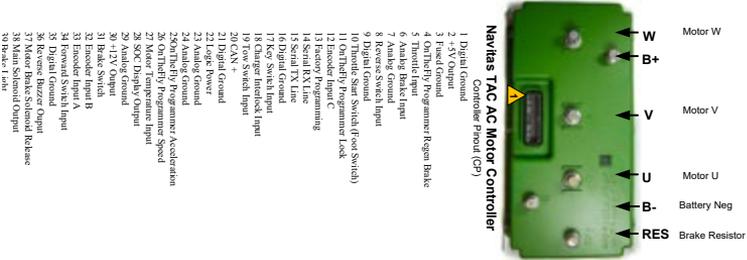
9. Test Installation

- Lift rear wheels
- Reconnect battery pack
- Put in "RUN" mode
- Turn key on
- Put in "F" for Forward
- Press on throttle to activate wheels

INSTALLATION INSTRUCTIONS

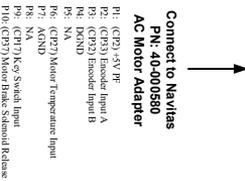
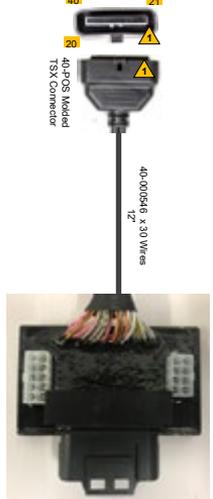
YAMAHA G29 DC to AC Conversion cont'd

Pinout for Controller



TAC1.0 harness for Yamaha G29
Navitas Part Number: 40-000630

Connect to Navitas PN: 10-000686
OnTheFly Programmer



Diagrams and other updates available at:
NavitasVS.com/support

APPENDIX A cont'd

MAC Performance Motor 10-000816 For EZ-GO, YAMAHA, STAR EV,
and COLUMBIA CAR PAR



MAC-A

High Performance AC Golf Car Motor (10-000816)

MOTOR FEATURES

- ✓ Hi Quality AC Induction motor
- ✓ External Speed Sensor
- ✓ Internal temperature sensor
- ✓ Steel and Aluminum construction
- ✓ High torque with High speed



MOTOR DATA

Type of Motor	AC Induction
Rated power	4 KW
Rated Voltage	34 V (AC)
Rated Current	91 A
Rated Speed	3600 r/min
Rated Frequency	123 Hz
RPM	0-6800 r/min
Splines	19
Insulation class	H
Protection mode	IP44

Applications

- ✓ Golf Car
- ✓ Utility Vehicle
- ✓ Motorcycle
- ✓ Personnel Carriers

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