

HYBRID CONTROL SYSTEM

SERVICE DATA

031RY-01

Inverter Standard	Power switch ON (IG)	
	A2 (GIVA) - A16 (GINV)	Approximately 0 V
	A3 (GIVB) - A16 (GINV)	Approximately 0 V
	A4 (GUU) - A16 (GINV)	Approximately 14 to 16 V
	A5 (GVU) - A16 (GINV)	Approximately 14 to 16 V
	A6 (GWU) - A16 (GINV)	Approximately 14 to 16 V
	A7 (MIVA) - A16 (GINV)	Approximately 0 V
	A8 (MIVB) - A16 (GINV)	Approximately 0 V
	A9 (MUU) - A16 (GINV)	Approximately 14 to 16 V
	A10 (MVU) - A16 (GINV)	Approximately 14 to 16 V
	A11 (MWU) - A16 (GINV)	Approximately 14 to 16 V
	A12 (VH) - A16 (GINV)	Approximately 0.5 V
	A13 (CPWM) - A32 (GCNV)	Approximately 0 V
	A14 (GSDN) - A32 (GCNV)	Approximately 2 to 4.5 V
	A15 (VL) - A32 (GCNV)	Approximately 0.5 V
	A16 (GINV) - C2 (GND)	Approximately 0 V
	A18 (GIWA) - A16 (GINV)	Approximately 0 V
	A19 (GIWB) - A16 (GINV)	Approximately 0 V
	A20 (CT) - A16 (GINV)	Approximately 0 V
	A21 (GIVT) - A16 (GINV)	Approximately 2 to 4.5 V
	A22 (GFIV) - A16 (GINV)	Approximately 5 to 8 V
	A23 (MIWA) - A16 (GINV)	Approximately 0 V
	A24 (MIWB) - A16 (GINV)	Approximately 0 V
	A25 (MSDN) - A16 (GINV)	Approximately 0 V
	A26 (MIVT) - A16 (GINV)	Approximately 2 to 4.5 V
	A27 (MFIV) - A16 (GINV)	Approximately 5 to 8 V
	A28 (OVH) - A16 (GINV)	Approximately 5 to 8 V
	A29 (CSDN) - A32 (GCNV)	Approximately 0 V
	A30 (FCV) - A32 (GCNV)	Approximately 13.5 to 16.5 V
	A31 (OVL) - A32 (GCNV)	Approximately 13.5 to 16.5 V
	A32 (GCNV) - C2 (GND)	Approximately 0 V
	B1 (ILK) - body ground	Below 1 Ω
	C1 (IGCT) - C2 (GND)	Approximately 8 to 16 V
	C2 (GND) - body ground	Below 1 Ω
Converter Operation	"READY" lamp ON OFF	Auxiliary battery voltage 14 V 12 V
Out put current		Approximately 80A or less
Speed sensor (resolver) Standard	A1 (GCS) - A4 (GCSG)	12.6 to 16.8 Ω
	A2 (GSN) - A5 (GSNG)	12.6 to 16.8 Ω
	A3 (GRF) - A6 (GRFG)	7.65 to 10.2 Ω
	B1 (MRF) - B4 (MRFG)	7.65 to 10.2 Ω
	B2 (MSN) - B5 (MSNG)	12.6 to 16.8 Ω
	B3 (MCS) - B6 (MCSG)	12.6 to 16.8 Ω
Temperature sensor Standard	C1 (MMT) - C4 (MMTG)	87.3 to 110.5 k Ω at 10°C (50°F) 23.8 to 28.5 k Ω at 40°C (104°F)
	C3 (OMT) - C6 (OMTG)	87.3 to 110.5 k Ω at 10°C (50°F) 23.8 to 28.5 k Ω at 40°C (104°F)

SERVICE SPECIFICATIONS - HYBRID CONTROL SYSTEM

Integration relay (IGCT Relay) HEV fuse (20A) Standard IGCT relay Standard	7J-1 - 7J-4 7J-1 - 7K-1 7J-2 - 7J-3 7J-4 - 7K-1	Below 1 Ω 10 k Ω or higher Below 1 Ω (Battery voltage is added between terminals 7J-2 and 7J-3) Below 1 Ω Below 1 Ω (Battery voltage is added between terminals 7J-2 and 7J-3) Below 1 Ω No continuity
Battery plug Standard	Install the service plug grip	No continuity Continuity
System main relay No. 1 Continuity Standard	Positive terminal - Negative terminal A1 (CONT1) - Terminal 5 A2 (CONT2) - B1 (CONT2) A3 (CONT3) - C1 (CONT3) B1 (GND) - GND terminal C2 (GND) - GND terminal	10 k Ω or higher Below 1 Ω (Apply voltage between the positive and negative terminals) Below 1 Ω Below 1 Ω Below 1 Ω Below 1 Ω
Resistance Standard	A1 (CONT1) - Terminal 5	70 to 160 Ω
System main relay No. 2 and 3 Continuity Standard	Positive terminal - Negative terminal	10 k Ω or higher Below 1 Ω (Apply voltage between the connector terminals)
Resistance Standard	Connector terminals	20 to 50 Ω
Battery current sensor Standard	Positive probe to terminal 1 (VIB) Negative probe to terminal 2 (GIB) Positive probe to terminal 2 (GIB) Negative probe to terminal 1 (VIB) Positive probe to terminal 1 (VIB) Negative probe to terminal 3 (IB) Positive probe to terminal 3 (IB) Negative probe to terminal 1 (VIB) 2 (GIB) - 3 (IB)	3.5 to 4.5 k Ω 5 to 7 k Ω 3.5 to 4.5 k Ω 5 to 7 k Ω 0.2 k Ω or less
System main resistor Standard		18 to 22 Ω
Battery blower relay No. 1 Standard	3 - 5	10 k Ω or higher Below 1 Ω (When battery voltage is applied to terminals 1 and 2)