



WORKSHEET 4-3

Hybrid Diagnosis (Customer Concern)

Vehicle	Year/Prod. Date	Engine	Transmission

Worksheet Objectives

In this worksheet you will diagnose a customer concern using an actual TAS case. To diagnose the concern, you will use the provided DTCs, Freeze Frame Data and Information Codes.

Tools and Equipment

- Repair Manuals or TIS

Section 1 - DTC Diagnosis

Repair Order

VIN	Year/Make/Model	Production Date	RO Number
JT2BK12U610019736	01/Toyota/Prius	1/10/01	319901
Air Cond.	PS	Trans	Mileage
Y	Y	A	2,069
Time Received	Date/Time Promised	Priority	
9:57am	5/01/02 6:00pm	4	
Comments: Customer states the check engine light came on and had enough power to get to the side of the road. Claims she did not run out of gas, meter reads full.			

1. View the Repair Order along with the DTCs, Information Codes and Freeze Frame data provided by the instructor to diagnose the customer's complaint above.

2. List all the DTCs and Information Codes along with their descriptions. Then put the codes in the proper hierarchy to help diagnose problem.

3. What information should you look for in the Freeze Frame data for P3000 and Info Codes 388 & 389?

4. What information should you look for in the Freeze Frame data for P3106 and Info Code 211 ?

5. What information should you look for in the HV Battery Data List?

6. What information should you look for in the P1128 Data List?

7. Why did DTC C1259 set?

8. What is the vehicle diagnosis?

DTC P1128 & C1259

```

DIAG. TROUBLE CODES
ECU: ENGINE
Number of DTCs: 1
P1128 Throttle control
      Motor lock
      Malfunction

```

```

ENTER = FREEZE FRAME
[EXIT] to Continue

```

```

DIAG. TROUBLE CODES
ECU: ABS/VSC
Number of DTCs: 1
C1259 HV system
      Regenerative
      Malfunction

```

```

[EXIT] to Continue

```

```

TROUBLE CODE.....P1128
CALC LOAD.....76%
ENGINE SPD.....1545rpm
COOLANT TEMP.....145.4°F
INTAKE AIR.....57.2°F
VEHICLE SPD.....60MPH
SHORT FT #1.....-7.1%
LONG FT #1.....1.5%
FUEL SYS #1.....CL
FUEL SYS #2.....UNUSED
STOP LIGHT SW1.....OFF
STOP LIGHT SW1.....OFF
ENG RUN TIME.....255
BATTERY.....13.7V
INJECTOR.....4.8ms
INJ VOL FB.....1.00
FUEL FB COEF.....0.95
A/F LEARN.....-98.5%
PURGE LEARN.....-100.0%
KCS FEEDBACK.....63.5°
REQ ENG POWER.....14kW
RAM MONITOR.....INCMPL
ENG RUN SIG.....OFF
ACC RACING SIG.....OFF
ENG WARM UP SIG.....ON
ENG RUN PERM.....PROHIBT
FC STATUS.....NO
ENG STP LIMIT.....ISC LRN

```

DTC P3000 - Information Code 388

```

DIAG. TROUBLE CODES
ECU: HV_ECU
Number of DTCs: 2
*P3000 Battery control
        system malfunction
*P3106 Communication
        malfunction
        <Engine -> HV>

```

```

ENTER = FREEZE FRAME
[EXIT] to Continue

```

```

COOLANT TEMP. .... 87.8°F
TACHO METER. .... 1248rpm
VEHICLE SPD. .... 0MPH
INTAKE AIR. .... 84.2°F
INFORMATION 1. .... 0
INFORMATION 2. .... 388
INFORMATION 3. .... 389
INFORMATION 4. .... 0
INFORMATION 5. .... 0

```

```

INFORMATION 2. .... 388
MG1 REV. .... 4480rpm
MG2 REV. .... 0rpm
MG1 TORQ. .... 4Nm
MG2 TORQ. .... 8Nm
POWER ROST. .... 0W
ENGINE SPD. .... 1216rpm
MCYL CTRL POWER. .... 0Nm
SOC. .... 9.80%
WOUT CTRL POWER. .... 0W
WIN CTRL POWER. .... -20000W
DRIVE CONDITION. .... 2
INVERT TEMP-MG1. .... 96.8°F
INVERT TEMP-MG2. .... 82.4°F
MG1 TEMP. .... 84.2°F
MG2 TEMP. .... 80.6°F
PWR RESOURCE UW. .... 270V
PWR RESOURCE IB. .... 12A
SHIFT SENSOR 1. .... 1
ACC SENSOR MAIN. .... 0.00%
ENG STOP ROST. .... NO
IDLING REQUEST. .... YES
ENGINE FUEL CUT. .... YES
HV BATT CH ROST. .... YES
HCAC ABSRT ROST. .... NO
ENG WARM UP ROT. .... YES
STOP SW COND. .... NO
CRUISE CONTROL. .... NO
AUX. BATT V. .... 13.87V
EXCLUSIVE INFO 1. .... -127
EXCLUSIVE INFO 2. .... -127
EXCLUSIVE INFO 3. .... -127
EXCLUSIVE INFO 4. .... -127
EXCLUSIVE INFO 5. .... -127
EXCLUSIVE INFO 6. .... -127
LOAD CONDITION. .... MG2
DRIVING PATTEN 1. .... LO SPD
DRIVING PATTEN 2. .... LO SPD
DRIVING PATTEN 3. .... LO SPD
IG OFF IN DRVIN. .... NO
SG B IN REDUCIN. .... NO
SG N IN REDUC/P. .... NO
STEP ACC&BRAKE. .... NO
IF OFF TIME. .... 0min
OCCURENCE ORDR. .... 1

```

DTC P3000 - Information Code 389

```

INFORMATION 3. .... 389
MG1 REV. .... 0rpm
MG2 REV. .... 0rpm
MG1 TORQ. .... 0Nm
MG2 TORQ. .... 0Nm
POWER RQST. .... 0W
ENGINE SPD. .... 0rpm
MCYL CTRL POWER. .... 0Nm
SOC. .... 14.50%
WOUT CTRL POWER. .... 0W
WIN CTRL POWER. .... 0W
DRIVE CONDITION. .... 2
INVERT TEMP-MG1. .... 73.4°F
INVERT TEMP-MG2. .... 66.2°F
MG1 TEMP. .... 71.6°F
MG2 TEMP. .... 69.8°F
PWR RESOURCE VU. .... 186V
PWR RESOURCE IB. .... 2A
SHIFT SENSOR 1. .... 1
ACC SENSOR MAIN. .... 0.00%
ENG STOP RQST. .... NO
IDLING REQUEST. .... YES
ENGINE FUEL CUT. .... YES
HV BATT CH RQST. .... YES
HCAC ABSRT RQST. .... NO
ENG WARM UP RQT. .... YES
STOP SW COND. .... NO
CRUISE CONTROL. .... NO
AUX. BATT V. .... 13.72V
EXCLUSIVE INFO 1. .... -127
EXCLUSIVE INFO 2. .... -127
EXCLUSIVE INFO 3. .... -127
EXCLUSIVE INFO 4. .... -127
EXCLUSIVE INFO 5. .... -127
EXCLUSIVE INFO 6. .... -127
LOAD CONDITION. .... MG2
DRIVING PATTEN 1. .... LO SPD
DRIVING PATTEN 2. .... LO SPD
DRIVING PATTEN 3. .... LO SPD
IG OFF IN DRVIN. .... NO
SG B IN REDUCIN. .... NO
SG N IN REDUC/P. .... NO
STEP ACC&BRAKE. .... NO
IF OFF TIME. .... 0min
OCCURENCE ORDR. .... 3

```

DTC P3106 - Information Code 211

```

DIAG. TROUBLE CODES
ECU: HV_ECU
Number of DTCs: 2
*P3000 Battery control
      system malfunction
#P3106 Communication
      malfunction
      <Engine -> HV>

```

```

ENTER = FREEZE FRAME
[EXIT] to Continue

```

```

COOLANT TEMP. .... 73.4°F
TACHO METER. .... 0rpm
VEHICLE SPD. .... 0MPH
INTAKE AIR. .... 71.6°F
INFORMATION 1. .... 211
INFORMATION 2. .... 0
INFORMATION 3. .... 0
INFORMATION 4. .... 0
INFORMATION 5. .... 0

```

```

INFORMATION 1. .... 211
MG1 REV. .... 0rpm
MG2 REV. .... 0rpm
MG1 TORQ. .... 0Nm
MG2 TORQ. .... 0Nm
POWER ROST. .... 0W
ENGINE SPD. .... 0rpm
MCYL CTRL POWER. .... -16Nm
SOC. .... 0.00%
WOUT CTRL POWER. .... 0W
WIN CTRL POWER. .... -20000W
DRIVE CONDITION. .... 2
INVERT TEMP-MG1. .... 73.4°F
INVERT TEMP-MG2. .... 66.2°F
MG1 TEMP. .... 71.6°F
MG2 TEMP. .... 69.8°F
PWR RESOURCE UW. .... 216V
PWR RESOURCE IB. .... 2A
SHIFT SENSOR 1. .... 1
ACC SENSOR MAIN. .... 0.00%
ENG STOP ROST. .... NO
IDLING REQUEST. .... YES
ENGINE FUEL CUT. .... YES
HV BATT CH ROST. .... YES
HCAC ABSRT ROST. .... NO
ENG WARM UP ROT. .... YES
STOP SW COND. .... NO
CRUISE CONTROL. .... NO
AUX. BATT V. .... 13.72V
EXCLUSIVE INFO 1. .... -127
EXCLUSIVE INFO 2. .... -127
EXCLUSIVE INFO 3. .... -127
EXCLUSIVE INFO 4. .... -127
EXCLUSIVE INFO 5. .... -127
EXCLUSIVE INFO 6. .... -127
LOAD CONDITION. .... MG2
DRIVING PATTEN 1. .... LO SPD
DRIVING PATTEN 2. .... LO SPD
DRIVING PATTEN 3. .... LO SPD
IG OFF IN DRVIN. .... NO
SG B IN REDUCIN. .... NO
SG N IN REDUC/P. .... NO
STEP ACC&BRAKE. .... NO
IF OFF TIME. .... 0min
OCCURENCE ORDR. .... 2

```

HV Battery ECU Data List

```

BATTERY SOC.....31.5%
WIN.....-20.0KW
WOUT.....0.0KW
DELTA SOC.....20.0%
IB MAIN BATTERY.....-128.00A
BAT BLOCK MIN V.....13.03V
MIN BAT BLOCK #.....16#
BAT BLOCK MAX V.....13.52V
MAX BAT BLOCK #.....19#
BATT TEMP 1.....73.4°F
BATT TEMP 2.....75.2°F
BATT TEMP 3.....75.2°F
BATT TEMP 4.....71.6°F
BATT INSIDE AIR.....68.0°F
NORMAL STATUS.....YES
PRE ONBOARD CH.....NO
ONBOARD CHARGE.....NO
OFF AVE CHG ST.....NO
COOLING FAN LO.....ON
COOLING FAN MID.....OFF
COOLING FAN HI.....OFF
VMF FAN VOLTAGE.....8.125V
SBLW FAN ST RQS.....OFF
AUX. BATT V.....11.640V
EOTR CHARGE ST.....OFF
EOCO DF RELAY.....OFF
CCTL.....ON
ET OFF CHR HR.....0.0Hr
BATT BLOCK V1.....0.00V
BATT BLOCK V2.....13.39V
BATT BLOCK V3.....13.27V
BATT BLOCK V4.....13.20V
BATT BLOCK V5.....13.26V
BATT BLOCK V6.....13.55V
BATT BLOCK V7.....13.33V
BATT BLOCK V8.....13.26V
BATT BLOCK V9.....13.11V
BATT BLOCK V10.....13.12V
BATT BLOCK V11.....13.22V
BATT BLOCK V12.....13.21V
BATT BLOCK V13.....13.24V
BATT BLOCK V14.....13.08V
BATT BLOCK V15.....13.27V
BATT BLOCK V16.....13.03V
BATT BLOCK V17.....13.24V
BATT BLOCK V18.....13.27V
BATT BLOCK V19.....13.52V
INSIDE RESIST1.....0.020ohm
INSIDE RESIST2.....0.021ohm
INSIDE RESIST3.....0.020ohm

```

```

INSIDE RESIST4.....0.020ohm
INSIDE RESIST5.....0.020ohm
INSIDE RESIST6.....0.020ohm
INSIDE RESIST7.....0.020ohm
INSIDE RESIST8.....0.020ohm
INSIDE RESIST9.....0.020ohm
INSIDE RESIST10.....0.020ohm
INSIDE RESIST11.....0.021ohm
INSIDE RESIST12.....0.021ohm
INSIDE RESIST13.....0.021ohm
INSIDE RESIST14.....0.021ohm
INSIDE RESIST15.....0.020ohm
INSIDE RESIST16.....0.020ohm
INSIDE RESIST17.....0.020ohm
INSIDE RESIST18.....0.021ohm
INSIDE RESIST19.....0.020ohm
ONB CHARGE TIME.....1+times
BATTERY LO TIME.....2+times
DC INHIBIT TIME.....10+times
BATTERY TOO HI.....0+times
IG OFF HOUR.....15Hr
IG ON HOUR.....0.31Hr
DTC.....0
XTEST SW SIG.....NORMAL
ECU CODE #1.....4
ECU CODE #2.....7
ECU CODE #3.....0
ECU CODE #4.....3
ECU CODE #5.....0
ECU CODE #6.....A

```



Notes