

ROSSKING



X232CVT & X212CVT ABS/ESC project *Customer Requirement Summary*

Mar 13th, 2017

BWI CHINA Control Brake

- ◆ X212 & X232 program is base on X200 ABS program.

-1, Develop ABS project

-2, Develop ESC project

- ◆ ABS SOP 2017.11.30

- ◆ ESC SOP 2018.06.30

Vehicle Configuration Chart

| Vehicle | PT | Tires | TCU | Driven | Controlled brake System for quote | IVC, Diag | SOP - In customer's SOR | Comment |
|---------|----------|-----------|-----|--------|-----------------------------------|---|-------------------------|---------|
| X212 | 1.5L Gas | 185-65R14 | CVT | FWD | TBD | CAN IVC, ISO11898 CAN Diag. ISO14229 | 2019.03.30 | |
| X232 | 1.5L Gas | 185-60R14 | CVT | FWD | | | 2019.03.30 | |

- ◆ Base function: ABS/DRP/TCS/ESC

- ◆ Value-added Features:

- **HAS**---Hill Start Assist (HLA)
- **ESS**---Emergency Stop Signal
- **BA**---Brake Assist (PBA)
- **LVBA**---Low Vacuum Brake Assist (HBB)
- **FBS**---Fading Brake Support?
- **HRB**---Hydraulic Rear wheel Boost
- **BDW**---Brake Disc Wiping(WBD)

Notes:

1, BWI just need 1 vehicle and 2 different tires for calibrations;

2, Value-added features influence the hardware selection, BWI suggest that HSA, BA function is enough.

◆ Key vehicle configuration

- Body Styles: Hatchback /Sedan
- Mass:
 - » GVW : 1460 Kg
 - » LLVW: 1085 Kg
 - » Wheelbase: 2415mm
- Track (front/rear): 1440/1410mm
- Overall length :4105mm

◆ Vehicle Configuration Sheet



X212&X232
vehicle data require

◆ Recommended EHCU

◆ HCU

ABS:18118146

ESC:TBD

◆ ECU

ABS:TBD

ESC:TBD

◆ Key Brake System Configuration

- Hydraulic ports: ISO
- Brake Split: Diagonal split
- Base Brake: Front Disc, Rear Drum
- Front Disc Cyl. Dia: 1*54mm (front)
- Rear Drum Cyl. Dia: 20.64 mm (rear)
- Effective Radius:100mm
- Brake Fluid: DOT4
- Tires: 185-65R14/185-60R14
- Spare tire: Full Size
- Rolling Radius:289mm/280mm
- Brake Pedal Ratio: 3.5
- Booster type & Ratio : Dual , 6.0
- Master Cyl. Dia:22.22mm
- Master Cyl Stroke: 15mm
(Primary)/16mm(Secondary)

* Values marked as “?” means not defined or finalized by customer

- ◆ Detailed requirement use BWI spec?



Vehicle Electrical
Configuration Sheet

◆ Peripheral

- WSS: active
- WSS Supplier:

◆ I/O requirement:

- Input:
 - Wheel Speed
 - Brake Switch
- Output:
 - Two Lamp Driver with two pin?

44 Message transmitted by ABS
 Information: Yes
 Operational: Unknown: Yes: No
 Locked: No: No
 Message size: 7 bytes

| MsgID | MsgLen | Req | Res | Sub | Req | Res | Req | Res | Req | Res | Req | Res |
|-------|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 0x12 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0x13 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0x14 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0x15 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0x16 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0x17 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0x18 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0x19 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0x1A | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0x1B | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0x1C | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0x1D | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0x1E | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0x1F | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

CAN message



ABS - 212-232
 MT V01 - 161211.

◆ Comm&Diag

- Communication: Simple CAN comm. with IC and EMS
- Diag: CAN

◆ Power capability

- Sensor power(Vacuum sensor) NO

◆ Others

- SW Auto Configurations? No request
- Security Requirement? No request

◆ ECU selection

- TBD
- We need EE information(Vehicle Electrical Configuration Sheet for china application _v002) from customer

List1,2,5

- ◆ Detailed requirement electrical system configuration will discuss with customer
 - We need EE information(Vehicle Electrical Configuration Sheet for china application _v002) from customer **List3,4,5**

| | | |
|-------------------|-------------------------|-----------------|
| Front WSS | Active/Passive | Active |
| | Type(discrete/integral) | Discrete |
| | # teeth | 48 |
| Rear WSS | Active/Passive | Active |
| | Type(discrete/integral) | Discrete |
| | # teeth | 48 |
| Inputs | Switch total(0) | Hardwire On/Off |
| | | |
| Outputs | LSD total(0) | Hardwire On/Off |
| | | |
| Comm. Diag | IVC | CAN |
| | IVC message map | IS011898 |
| | Diagnostics | IS014229 |

TBD

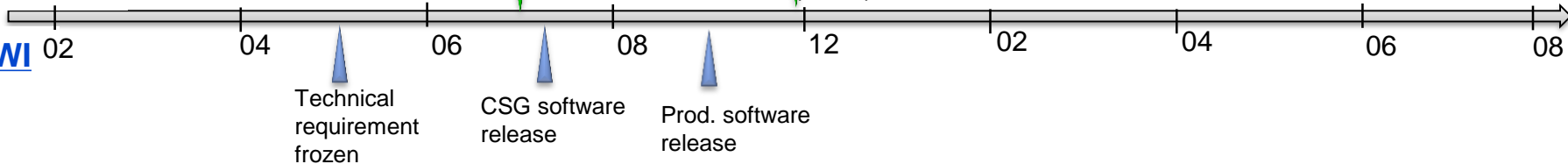
ESC CAN message

ABS Milestone

Customers

(2017)

BWI



Dev. Timing/开发节点

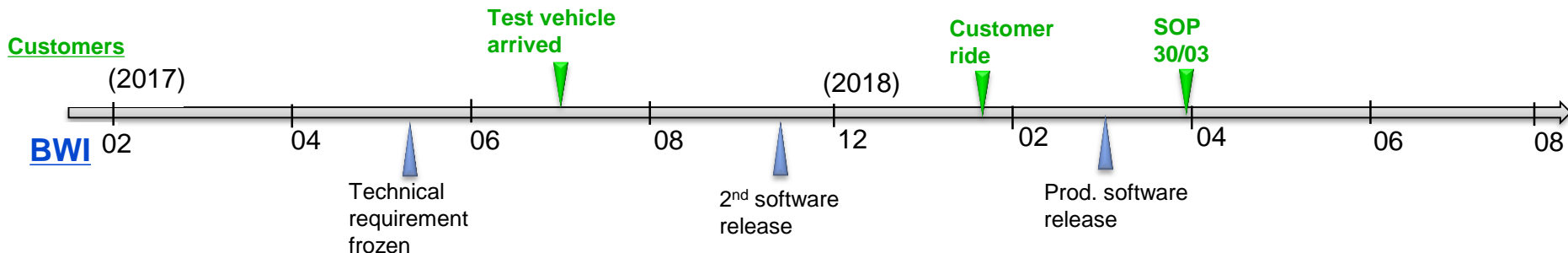
Comments/备注

| | | |
|-------------------------------------|----------------------|---|
| ◆ LOI received. Sourcing completed. | 30Mar2017 | Project awarded |
| ◆ Vehicle configuration definition | 10Apr2017 | HCU size confirm |
| ◆ CAN message map/IVC released | 30Apr2017 | Electrical & Comm. requirement frozen |
| ◆ CSG release for test vehicle | 10June2017 | Communication function for bench test |
| ◆ Test vehicle arrived | 30June2017 | Vehicle arrived before 30/8 to Yan Cheng PG |
| ◆ Vehicle verification | 30June2017—30Aug2017 | Final test in Yan Cheng PG(proving ground). |
| ◆ Prod. Software release | 30Sep2017 | Production release for ABS/ESC. |
| ◆ PPAP approved | 30Oct2017 | |
| ◆ SOP | 30Nov2017 | Program launch |

Notes:

1, BWI will confirm the X100/X200 CL engineering change vehicle check out is OK.-----before 25Apr2017

ESC Milestone



Dev. Timing/开发节点

Comments/备注

| | | |
|---|------------------------|---|
| ◆ LOI received. Sourcing completed. | 30Mar2017 | Project awarded |
| ◆ Vehicle configuration definition | 10Apr2017 | HCU size confirm |
| ◆ CAN message map/IVC released | 15May2017 | Electrical & Comm. requirement frozen |
| ◆ 1 st CSG release for test vehicle | 20June2017 | Communication function for bench test |
| ◆ Test vehicle arrived | 30June2017 | Vehicle arrived before 30/6 to Yan Cheng PG |
| ◆ Mild weather calibration | 30June2017—30Sep2017 | Vehicle build and mild weather calibration |
| ◆ 2 nd software release for mild calibration | 30Oct.2017 | Integrate mild weather calcs. |
| ◆ Vehicle shipped to Da Qing | 05Nov.2017 | test vehicle |
| ◆ Cole weather calibration and customer ride | 08Nov.-2017—30Jan.2018 | ABS/ESC development & ride in Da Qing |
| ◆ Vehicle shipped to Yan Cheng PG | 05Feb.2017 | test vehicle |
| ◆ Vehicle verification | 05Feb.2018—30Mar2018 | Final test in Yan Cheng PG(proving ground). |
| ◆ Prod. Software release | 30Apr2018 | Production release for ESC. |
| ◆ PPAP approved | 30May2018 | |
| ◆ SOP | 30Jun2018 | Program launch |