

1ÇÑμ;ÃÃÃÃÕ´ÉÁÃÃ¶1ÐÈÑÇ©Õ´á«ÀÔ1ÍÃ´ìà·èÒà¾ÔÃâ« áÀÐà·ÍÃìàªÒÃì·à·ÍÃìϕ1Ò´àÀÇ;¾ÔÃìϕÒèÈ1'Ù'Ò;μ1'μÒà11·ÍÃ

àÃà;1'È1'0ÙÃì;àÇÒÃ11'Ò μ1'μÒà11·ÍÃÒ'μé1à·μà1àÃÃÒÃÐªªxèlà¾ÀÔΣÍÒ;ÒÈáÀÐÃÐªª'Ø'ÃÐà'0'
à¾xèlàÈèÃ¶1'μìã1'1'ÒμμÃÒμªªÈÁªÑμÒÈÍ'μÁéì;Ñªªé1ªÑμªÑªªÇè'èÇÃ;ÒÃãªªÀÑΣΣÒ1áÀÐ;ÒÃ»ÁèÍÁ1'ØÀÒμáìàÈÒÃ·Òèàçé.

à;ÃìÒÃì· àªÈì ÈÑÇÈ1'èÒÈ1'èÇÃ·ØÃ;Ò'ÃÐªªμxèì;Á1'μì »ÃÐ'Ó½èÒÃ·ØÃ;Ò'ÃÐªªÈè;ÒÃÑΣ;ìÀèÒÇÃÐÈÇèÒΣàçéÒÃèÇÃ»ÃÐªª
μ1'μÒà11·ÍÃ·é¾Ñ²1'ÒáÀÐ¾ÀÔμà·μà1àÃÃÒ·Òèμ1'È1'ÍΣμÇÒÀμéì;ÒÃçì;μÃÒ'·Òèàμ;μèÒΣ;Ñ1'
»ÃÐ;ì'èÇÃà·ÍÃìàªÒÃì·à·ÍÃì·Òèμ1'μÒà11·ÍÃ¾ÒèΣ»ÃÑª»ÀØΣãÈÁè'ÒΣÈÒÃÒÃ¶ÁÍΣÃÑª;ÒÃμÒ'μÑéΣàçéÒ;Ñªªμxèì;Á1'μì·ÒèÁ
áÀÐÃÐªªμªªØÈÑÇ©Õ´á«ÀÔ1ÍÃ´ì·ÉÃ×ì àμ«Ò (Controlled Solenoid Injection – COSI) «ÒèΣμÇªªØÃãÈèÁÒ;ÒÃ'èÒÃàªxèlà¾À
·ÒãÈèà;Ò'ìÒÃμ1'È1'ÍΣ'Ò;áμμÒáÀμÒμ μ1'áÇÍÃìμ1'Áì·éìÀèÒΣÃÇ'áÀÇÇ'Á'ìÒÃ'Á'»ÁèÍÁ1'ØÀÒμáìàÈÒÃ áÀÐ»ÃÐÈÃÑ'¾ÀÑΣΣÒ
àÃxèìÃÐªªÈÑÇ©Õ´áªxèlà¾ÀÔΣ·ÒΣÒ1'»ÃÐÈÒ;ìÑªªμxèì;ÈÙªÁΣ'Ñ1'ÈÙΣ·Òèμ1'μÒà11·ÍÃ¾ÒèΣ»ÃÑª»ÀØΣãÈÁèÁÑΣ·ÒãÈèÁÒ

μ1'μÒà11·ÍÃ¾ÀÔμÃÐªªμªªØÈÑÇ©Õ´á«ÀÔ1ÍÃ´ì·ÒÃª·èÒÈÑÇ©Õ´á¾ÒÃâ«
ÃÐªªÈÑÇ©Õ´ÁÒª·Ò·ÈÃÑ;ã1;ÒÃÃÑ;ÈÒÃÐ'Ñª;ÒÃ»ÁèÍÁìàÈÒÃãÈèà»ç1'á»μÒÃ;®ÈÁÒÃ»Ñ'ÑÁÈÒμÑ·μxì;ÒÃÇÑ'»ÃÒÃÒªªxè
áÀÐ;ÒÃãμÃÒÃÁμÑÇÁÍΣÃÑªªμxèì;¾è1'áªxèlà¾ÀÔΣÍÒ;ÒÈ (air-fuel jet) μÇÒÃ·èÒ·ÒÃμÑéΣÈÒμÑ·ÈÒÈÃÑªÒÃ;Ò'ÒèμxìàÈ
¾Áéì;Á1'Ñª;ÒÃ;èìμÑÇçì;ì1'ØÀÒμáìàÈÒÃã1àÇÃÒà'ÒÃÇ;ìÑ1' ÍÃèÒΣãÁ;çμÒÃ
à'Á·ÑèÇã»áÁéÇ;ÃÐªªÒ;ÒÃ·ÒΣÒ1'çì;ÈÑÇ©Õ´·Òè'Ð;ìÃÐμØé1'ãÈèàμxèì;ç;ì;ìàÈÒÃªªÒΣãÁèΣ»·Ò;ÒÃÒÃÒàÃÒèÁΣÒ1'á'èàÃÇÇ
Í'ØÀÒμáìàÈÒÃÈèÇ1'ãÈ·èà;Ò'çÒé1'ã1'èèÇΣ·Òèàμxèì;Á1'μìÁÑΣáÀÇ'μÑÇÈÃ×ì·Ñ1'·Ò·ÒèÁÒ;ÒÃì;ÈμÒÃìμ
«ÒèΣ»éì;Ñ1'á'èà'ÁãªèÃÐªªÈÑÇ©Õ´áªªÈÁÒÃÈÑÇ¾Áéì;Á1'Ñª»ÃÒÃªªxèlà¾ÀÔΣ¾ÀÔΣãÁ;çì;éìÁáÀÐÈÑÇ©Õ´áÀΣ'Ñ1'ÈÙΣ¶ÒΣ
ÁáÀÇ;ì;çμÒÃ'èÇÃàÈμØ1'ÒèáÁéÇÃÐªªÈÑÇ©Õ´ª1'Ò'Òè'ÒΣà»ç1'·Òèμéì;ÒÃìÁèÒΣÈÙΣ á'Á;èì'È1'èÒ1'ÒèÁÒªªÒÃΣÈÑÇ©Õ´á¾Ò
μÁÑéΣçªª·ÒèÁÑΣΣÈÒÃÒÃ¶Ò'¾è1'á'éìÁèÒΣáÁè1'ÁÒ

ã1'ÑªªØªÑ1'ÃÐªªμªªØÈÑÇ©Õ´á«ÀÔ1ÍÃ´ì·ÉÃ×ì àμ«Ò ÈÒÃÒÃ¶ÈèΣÈÑ--ÒªªÈèàªxèlà¾ÀÔΣ»ÃÒÃÒªª¾ÒÃΣàÀÇ;ìéìÁà·èÒ1'Ñé
«ì;μìáÇÃìμÑÇÈ1'ÒèΣ'Ðà»ç1'μÑÇμªªØÁ»ÃÒÃÒªªxèlà¾ÀÔΣμèì;ÒÃÈÙªÒ©'1
μÁÑéΣáÀÐÈÑÇà;ìμ;ÒÃ³ÈÑÇ©Õ´áμèÁÐÈÑÇàªxèlàÁèãÈèÈÑÇ©Õ´»ÁèÍÁªxèlà¾ÀÔΣì;ÁÒã1'»ÃÒÃÒªª·ÒèéìÁ'1;Ò1'á'áÀÐàÁè
ìÃÐªªÒ;ÒÃ'ÑΣ;ìÀèÒÇ1'Òè·ÒãÈèàμ«ÒÃÑª»ÃÐ;ìÑ'μÇÒÃ¶ìμéì;Áè'ÁÒμÁì;ìÒÃãªèΣÒ1'ÈÒ;ÇÑ'ìÑ1'·Òè»ÃÒÃÒªªxèlà¾ÀÔΣã1'ÁÈ
à·èÒ;ìÑªªÒèàμ«Òã'èÁ;ÃÐ'ÑªªÈÑÇ©Õ´á«ÀÔ1ÍÃ´ì·ÈèÁÒÈÈÁÃ¶1'Ðà·ÒÃª·èÒ;ìÑªªÈèΣ·Òèã1'ÑªªØªÑ1'ÁÒªªÒÃΣÈÑÇ©Õ´á¾ÒÃ
ÃÐªª'ÑΣ;ìÀèÒÇ1'Òè¶ì;ÒÃÒãªèèÈÁÒÃ;Ñª»ÑèÁÈÙªªªxèlà¾ÀÔΣáÁΣ'Ñ1'ÈÙΣ·Òèμ1'μÒà11·ÍÃ¾ÒèΣ»ÃÑª»ÀØΣãÈÁè'èÇÃ'»ÑèÁÈ
·ÒãÈèà;Ò'èÈÁΣçªª·ÒΣÒ1'¾ÀÔΣ 1-6 à'«ÒªªÀ·èÒ1'Ñé1' àÃxèlà»ÃÒÃª·ÒÃª·ÁéÇ1'ÑªªÒèàªÒ;çèÒ¼ÀÔμ¾Ñªªèì;çμèáçèΣÁ

à·ÍÃìàªÒÃì·à·ÍÃìϕ1Ò´àÀÇ;áÀΣÁéÒÈÙΣ »ÃÐÈÃÑ1'èÒÃÑ1'Ò;μ1'μÒà11·ÍÃ
ÀÒμÃ;ÒÃÈÒμÑ·ã1;ÒÃÁ'ìÒÃãªªÀÑΣΣÒ1'μxì'Á'»ÃÒÃÒμÃμÇÒÃ'ØáÀÐªª'Ò1'Ç1;ÃÐªªì;ÈÙªª μxèì;Á1'μìáªª·ÍÃìàªÒÃì·ÒèÁÒç1'
áμèÁÑ;ÈÒç1'çèÒÃ;ÒÃ·ÒΣÒ1'μÒÃÃÐªª·ÒèÇÒΣàçé'ÒÃÒèΣçÒé1' áÀÐ'·ÒªÑμÒΣÒ1'èÇÃÈÁÃ¶1'ÐÈÙΣμÒÁÈÃÑ;ìØªª¾ÀÈÒÈμÁì
à·ÍÃìàªÒÃì·à·ÍÃì'Ðμéì;ÁÒ'·Ò;ÒÃÒÃÒμ1'È1'ÍΣÁèÒΣ©ÑªªçàªxèìÁÑ;ÈÒÃÑ;È³Ðçì;ÒÃçÑªªÒèàÇèãÈèμÁèÒÃμÒΣ;ìÑªªμxèì;

»ÑªªÑÁ·ÒèÈÒμÑ·ã1'çÑé1'μ1'Òèμxì'ÃÐªªìÑΣÈÑ1'ÈÑ;ÁÀÒ¾ÈÙΣáÀÐ;ÒÃÈÙ·àÈÒÃã1'ÃÐ'ÑªªμèÒ·ÒèàÇÈμìà;·ÁÒé1'ªªÒèÁΣ«ÒèΣ»é
'Ðμéì;ÁÒ;ÒÃμªªØÁÁèÒΣ'ÒáÀÐ»Ò'ãÈèÈ1'Ò·ÒèÈØ'á·èÒ·Òè'Ð·Òã'èàÃxèlàμxèì;Á1'μìÁÒμÇÒÃáÀÇÇã1'ÃÐ'ÑªªμèÒ
àªxèlàÈèà·ÍÃìàªÒÃì·à·ÍÃì·ÒΣÒ1'á'éìÁèÒΣμÇÃ»ÃÐÈÒ·ÒÃÒ¾μÑéΣáμèèÇΣáÁ;áÀÐÈÒÃÒÃ¶Ò1'Ò;ÒÈ «ÒèΣà»ç1'ÈèÇ1'ÈÒμÑ·
ÈÑÇçÑªªÒèÇÈμìà;μä;çèÒçì;μ1'μÒà11·ÍÃÈÒÃÒÃ¶ÈÍ'»ÃÐÈÒ1'áçéÒã»á'μÑÇçèΣáì'Òã'éìÁèÒΣÈÁÒÙÁªªªªxèlà¾ÀÔΣμÇÒÃÁÁ
«ÒèΣì;ìªªªÈÁèãÈèÁÒÃÙ·ÁΣà»ç1'á¾è1'Ò1'ÁΣ;ìÁÁÒÈÈÁÑΣμÒÃÙ»á'Á'Ð·ÒÈ1'èÒ·ÒèÁ'áÁΣ'Ñ1'·ÒãÈèÈÒÃÒÃ¶1'ÒãìàÈÒÃÒãªª
áÁΣªÒÃì·ÐÃÒªªÒèÁÁÒ;çÒé1'áÀÐàÀÇÇçÒé1'Òç;ìÑªªáÁΣàμxèì;Á1'μì·ÒèÁÒÍÁÙèàÁéÇ;èì'È1'èÒ1'Òè·ÒãÈèà¾ÒèÁμÇÒÃÈÐ'Ç;ìΣ

=====