

STATUS FIRST STAGE REGULATOR ELECTRONICS



MAINTENANCE MANUAL FOR AUTHORISED TECHNICIANS

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Status First Stage Regulator Electronics Maintenance Manual (AP5927 Issue 1)

INTRODUCTION

V@ā•Á{ æ} ~æ|Á]; [çãå^•Á~æ&c[;^Á];^•&;ãà^åÁ]; [&^å~;^•Á~[;Ác@^Á&[;;^&cÁ { \alpha \alpha \c^}\alpha \alpha \al c@^ÁÙVŒVWÙÁ¦æ}*^ÈÁQcÁã•Á}[cÁã}c^}å^åÁc[Áà^Á*•^åÁæ•Áæ}Áã}•c¦*&cã[}æ|Á { æ}~æ|Á~[¦Á~}c¦æã}^åÁ]^¦•[}}^|ÈÁÁV@^Á]¦[&^å~¦^•Á[~c|ã}^åÁ¸ãc@ã}Ác@ã•Á { æ} ~æ|kæ|^\c[kà^\h]^!~[! { ^å\k[}|^kà^\h]^!•[}}^|\karray| ~æ&c[¦^Áæ`c@[¦ã•^åÁc¦æã}ã}*Ác@¦[`*@Áæ}ÁŒ]^\•ÁÙ^¦çã&^ÁBÁÜ^]æã¦Á Ù^{ā}æ¦ÈÁQ-Á^[~Áå[Á}[cÁ&[{]|^c^|^Á~}å^\•cæ}åÁæ||Á[~Ác@^ÁÁ]¦[&^å~\^•Á [~c|ā}^åkā}kc@ā•k{ æ}~æ|Èk&[}cæ&ckCE]^\•kc[k•]^æ\kåā¦^&c|^k¸āc@kæk V^&@}ã&æ|ÁŒåçã•[¦Áà^~[¦^Á]¦[&^^åã}*Áæ}^Á~`¦c@^¦È

WARNINGS, CAUTIONS & NOTES

Úæ^Á•]^&ãæ|Áæcc^}cā[}Ác[Áā}~[¦{æcā[}Á]¦[çãå^åÁā}Á、æ¦}ā}*•ÊÁ &æ`cā[}•ÊÁæ}åÁ}[c^•Ác@æcÁæ!^Áæ&&[{]æ}ā^åÁà^Á[}^Á[-Ác@^•^Á •^{à[|•K



WARNINGS indicate a procedure or situation that may result in serious injury or death if instructions are not followed correctly.



CAUTIONS indicate any situation or technique that will result in potential damage to the product, or render the product unsafe if instructions are not followed correctly.



NOTESÁæ!^Á *•^åkc[k^ {]@æ•ã•^kā {][/cæ}ck][ã}c•Êkcã]•Êkæ}åk /^ {ã}å^;•È

STATUS NOTES

&榦^Á[ˇcÁc [Á~ˇ}&cã[}•È

Øä!•c|^ÊÁācÁ&æ|&~|æc^•Á . @^c@^!Ác@^Á , !•cÁ•cæ*^Áã•Á•~]]|^ā}*Á*æ•Ác[Ác@^Á •^&[}åÁ•cæ*^ÁæcÁc@^Á&[;!^&cÁ{^åã`{Á]!^••`!^ÁÇTĒČÉDÁã}Á[;å^:Á~[;ÁãcÁ $c[\dot{A}]^{-1} = [\dot{A} \times \dot{A} \times \dot{A}$ &æ|&`|æc^åhà^hà|c@h`•æ*^hæ}åhæ}hā}c^;}æ|Êhæ}}`æ|h&|[&\ÈhhCE||h|~h c@ā•Áā}~[¦{ æcā[}Áā•Áåā•]|æ^^åAc[Ác@^Á*•^!ÁçāæÁæ}ÁŠÔÖÁåā•]|æ^Á*][}Á];^••~;ã•æcã[}È

Medium Pressure Status

Q~Ác@^ÁTÈŒĤã•Ác[[Á@ã*@Á[¦Ác[[Á|[¸ÊÁc@^ÁŠÔÖÁåã•]|æ^Á¸ã|JÁåã•]]æ^Á±PQqÁ [¦Á±ŠUqÁ¦^•]^&cāç^|^ÊÁÁV@ã•Á¸ã||Áæ|•[Áà^Á~[||[¸^åÁà^ÁæÁ'æ•@ã}*Á±ÙXÔqÁ •ā*}ĒÁā}åā&æcā}*Ác[Ác@^Á~•^!Ác@æcÁc@^Á!^*~|æc[!Á!^~~ã!^•Aæ}Aā}•]^&cā[}Á à^AæA•^!çã&^Ac^&@}ã&ãæ}ÈAAQcAã•Ac@^}AæcAc@^Ac^&@}ã&ãæ}q•Aåã•&!^cã[}A

@^c@^!Ác@^Á!^*~|æc[!Á}^^å•ÁæÁÁTÈÚÉÁæåb~•c{^}cÁ[!Áã-ÁæÁ@ã*@Á] ¦^••~`!^ÁÇPÈÚĖDÁ|^æ\æ*^Á@æ•Á[&&`¦^åÁæ}åÁæÁ~`||Á•^¦çã&^Áã•Á¦^``ã¦^åÈÁ V@ā•Áā•Áå^]^}åæ}cÁ[}Ác@^Á&[}åācā[}Á[~Ác@^Á&[{][}^}c•Á¸āc@ā}Á c@^A, |•cA•cæ*^A[|Ac@^A|^}*c@A[~Acã{^A•ã}&^Ac@^A|^*~|æc[|A]&•A|æ•cA •^!çã&^åÁçã~Á&|[•^Ác[Á[}^Á^^æ¦ÊÁæÁ~~||Á•^!çã&^Áã•Á!^&[{ {^}}å^åDÈ Q~Ác@^Á T ÈÚÁā•Á& [; ; ^&cÁæ} åÁc@^; ^Áã•Á} [Á|^æ\æ*^ÊÁc@^}Ác@^ÁŠÔÖÁ åã•]]æ^Á , ã||Á•@[, Á±USol~[;lÁæA• { æ||A|^} *c@A[~Acã { ^læ}}åAc@^}lÁācA , ã||Á åã•æ]]^æ¦È

Service Status

V@^ÁÙcæcˇ•Áã}åã&æc[¦Á¸ã||Áåã•]|æ^Á±ÙXÔqÁ^ãc@^¦Áæ}}`æ||^Á[¦Áæ~c^¦Á æÁ•]^&ā, &Ácā { ^Á[~Á*•æ*^ÈÁ; @ã&@^ç^¦Á&[{ ^•Á; !•cÈÁÁV@ã•Áā}~[; { •Á c@^A~-^!Ac@æcAc@^A!^* | æc[!A}^^a-Ac[Aà^Aā}-]^&c^aAà^AæAU^!çã&^A c^&@}ã&ãæ}É

Qchā•A:\^&[{ {^}a^aAc@æchc@^hOE]^\•h\Ucæc~•A,:•ch•cæ*^h:\^*~|æc[:h •@[~|åh@æç^hæ}hā}c^!ā{h•^!çā&^h&æ!!ā^åh[~chæ}}~æ||^h!^*æ!å|^••h[~h ~eæ*^ÊÁ [āc@ÁæÁ~~||Á•^¦çã&^Áà^ã}*Á]^¦~[¦{^åÁ^ç^!^Ác[[Á^^æ!•ÈÁA V@^Á¦^* `|æc[¦q•Á]¦^çā[`•Á•^¦çā&^Á@ā•c[¦^ÊÁæ|[}*Á ¸āc@Ác@^Á*^}^!æ|Á &[}åācā[}Á[~Ác@^Á,;•cÁ•cæ*^ÉÅåã&cæc^Á,@^c@^;ÁæÁ~~|]Á•^;çã&^Áã•Á '^~`ã¦^åk['kã~kæ}kā}c^¦ā { kā•k•æcã•~æ&c[¦^ÊkāĒ^Èkā~kāck, æ•k~`||^k•^¦çã&^åk c@^Á]¦^çā[~•Á^^æ|ÊÁc@^}Á[}|^Áæ}Áā}c^¦ā{Á•^¦çā&^Á¸ā||Áà^Á}^&^••æ¦^ÈÁ Battery- Important notes

NOTE: ÁQ-ÁæcÁæ[JÁ*}•*¦^Áæà[*cÁc@^Á&[;¦^&cÁ~*}&cã[}æ[ãc^Á [~Ác@^ÁŒ]^\•ÁÙcæc~•Á.;•cÁ•cæ*^Á[;Áã~Ác@^ÁÙcæc~•Áã}åã&æc[;Á åã•]|æ^•Á±PQql[¦Á±ŠUÁc@^}ÁãcÁ{ ~•cÁà^Á[~,&ãæ||^Áã}•]^&c^åÁ ã { { ^åãæc^|^È

Qchā-Acācælhc@æchc@^hàæcc^\^hā-h\^]|æ&^aha`\iā*hà[c@hæ\hā\c^\iā { hæ\ah ~~||Á•^\;Çã&^ÈÁÁV@ã•Á;^•^c•Ác@^ÁÙ^;Çã&^ÁÙcæc~•Áã}åã&æc[;ÊÁ;āc@Áà[c@Ác@^Á æ}}~æ|Áæ}åÅ~•æ*^Á&[~}c^!•Á!^•cæ!cã}*Á~![{Á:^![Ė Q~Á@[`^ç^;ÊÁc@^Á;^* `|æc[;Á@æ•Á[}|^Á@æåÁæ}Áæåb`•c{^}cÁ[~Ác@^Á⊤ÈÚÈÉÁ ±ÙXÔqÈ



ã}åã&æc[¦ĖÁÁÒ}•~;/^Áàæcc^;^Áã•Á;^]/æ&^åÁ¸ãc@ÁæÁ}^¸Á[}^Á^ç^;^Á cã { ^È



WARNING: When handling and disposing of batteries, please observe the following instructions to prevent accidents.

Never swallow- keep out of reach of children.

Never charge, heat or expose to open flames- this can lead to fire and cause it to explode.

Never disassemble the battery.

Never short circuit the battery by reversing the +tive and tive terminals when mounting or by touching it with a metal object.

Do not allow the electrodes to come into contact with your skin or fingers. The moisture from your skin may cause discharge resulting in chemical burns.



An Official Inspection consists of:

- CEÁ];^••~;ã•^åÁã { { ^:•ã[}Ác^•cÁ[~Ác@^Á^}cã;^Á~}ãcÁc[Á&@^&\Á~[;Á æã¦Á|^æ\æ*^È
- O@^&\a}*Á~[;Á•cæà]^Á { ^åa~ { Á];^••~;^Ác@æcÁa•Á . ac@a}Ác@^Á æ&&^]cæà|^Álæ}*^È
- O@^&\``a`} *\dc@æckæ||\dag{\\alpha\}\alpha\c@\\alpha\c\alpha\c\\alpha\c\\alpha\c\\alpha\c\\alpha\c\\alpha\c\\alpha\c\alpha\c\\alpha\c\ } [A]æ¦c•Aæ¦^A|[[•^È
- ŒÁçã•~æ|Áã}•]^&cã[}Á[~Ác@^ÁÒ}çã¦[} {^}cæ|ÁÖãæ]@¦æ* {Á |[[\ã}*Å~[!Ác^æ!•Á[!Á@[|^•Áæ}åÅ&@^&\ã}*Ác@^Á*^}^!æ|Á
- ŒÁÇã• `æļÁã}•]^&cã[}Á[~Áæ}^Á, |c^¦•Á~[¦Áå^à¦ã•Á[¦Áåã•Ë &[|[~¦æcã[}È
- •^&~¦^Áã}Ác@^Á@[•^Á&¦ã{]•È

Q~ÁæÁ!^* |æc[;Á~æã|•Á•c^]•ÁFÊGÊÁ[;ÁHÁc@^Á^}cã!^Á!^* |æc[;Á•@[~|åÁà^Á •^!cã&^åÈÁQ~ÁæÁ!^* |æc[!Á~æã]•Á!Á[!ÁÍÁācÁ ā]|Áà^ÁæcÁc@^Ác^&@}ã&ãæ}q•Á åä•&;^cā[}Á,@^c@^;Á[;Á}[cdæd~~]|Á•^;çã&^Áã•Á;^~~ã;^åÈÁØæã|~;^Á[~Á•c^]Á ÎÁ¦^~~ã¦^•Á¦^]|æ&^ { ^}cÁ[~Ác@^ÁP[•^È

GENERAL GUIDELINES

- Q}Á[¦å^¦Ác[Á&[¦¦^&c]^Á]^!~[¦ { Ác@^Á]¦[&^å`¦^•Á[~c[ã}^åÁã}Á ~æ { ã|ãæ¦Á¸ãc@Áæ||Á]¦[&^å~¦^•Áæ}åÁc[Á|^æ¦}Á¸@ã&@Á•]^&ãæ|c^Á c[[|•Áæ}åÁ¦^]|æ&^{^}cÁ]æ¦c•Á¸ã||Áà^Á¦^~~ã¦^åÁà^~[¦^Á &[{ {^}&ã}*Áåã•æ••^{à|^ÈÁÁS^^]Ác@^Á{æ}`æ|Á[]^}Áà^•ãå^Á ^[~Á~[¦Á¦^^^!^}&^Á_@ā]^Á]^¦~[¦{ã}*Á^æ&@Á]¦[&^å~¦^ÈÁÁÖ[Á}[cÁ
- |a*@ca}*EA&|^æ}|a}^••EAæ}aA^æ•^Aæ&&^••Ac[Aæ||Ai^~~ai^aAc[[]•Aæ!^A ^••^}cãæ|Á~['Áæ}Á^~, &ā^}cÁ!^]æã!Á~æ&ã|ãc^È
- $\ddot{O} \ \ddot{a} \ \ast \dot{A} \\ \ddot{a} = \varpi \bullet \bullet \land \ \dot{a} \ \dot{\hat{E}} \\ \dot{A} \ \dot{A} \ \ddot{a} = \varpi \bullet \bullet \land \ \dot{a} \ \dot{\hat{E}} \\ \dot{A} \ \dot{A} \$ HÈÁ •^*¦^*æc^åÁæ}åÁ}[cÁæ||[¸^åÁc[Áã}c^¦{ã¢Á¸ãc@Á}[}˦^`•æà|^Á] & |c-A| = A + |a| & |c-A| = A + |a| & |a| &ã}|^cÁ,ccã}*•Áæ}åÁçæ|ç^Á•^æc•Á¸@ã&@Á&[}cæã}Á&¦ãcã&æ|Á•^æ|ã}*Á • ` |~æ&^•ÊÅ { ` •ckà^A] | [c^&c^åAæ}åÄā• [|æc^åA~| [{ Å[c@^!A]æ!c•Ac[A] \\c^\cha\text{a} { \text{\$\alpha\$*\ha\text{\$\alpha\$*}\ha\text{\$\alpha\$*\ha\text{\$\alpha\$*\ha\text{\$\alpha\$*\ha\text{\$\alpha\$*\ha\text{\$\alpha\$*\ha\text{\$\alpha\$*\ha\text{\$\alpha\$*\ha\text{\$\alpha\$*}\ha\text{\$\alpha\$*\ha\text{\$\alpha\$*\ha\text{\$\alpha\$*}\ha\text{\$\alpha\$*\ha\text{\$\alpha\$*}\ha\text{\$\alpha\$*\ha\text{\$\alpha\$*}\ha\text{\$\alpha\$*\ha\text{\$\alpha\$*}\ha\text{\$\alpha\$*}\ha\text{\$\alpha\$*\ha\text{\$\alpha\$*}\ha\text{\$\alpha\$*}\ha\text{\$\alpha\$*}\ha\text{\$\alpha\$*}\ha\text{\$\alpha\$*}\ha\text{\$\alpha\$*}\ha\text{\$\alpha\$*}\ha\text{\$\alpha\$*}\ha\text{\$\alpha\$*}\ha\text{\$\alpha\$*\ha\text{\$\alpha\$*}\ha\text{\$\al
- W•^A[}|^A*^}~ã}^ACE]^\•A]ælc•A]![çãa^aAã}Ac@^AF•cA•cæ*^A •^¦çã&^Á\ãcÁnjڀGGÏDÈÁÁÖUÁÞUVÁæcc^ {]cÁc[Á•`à•cãc`c^Áæ}Á CE]^\•Á]æ¦cÁ¸ãc@Áæ}[c@^¦Á{æ}~æ&c~¦^¦q•ÉÁ¦^*æ¦å|^••Á[~Áæ}^Á •ã {ã|æ¦ãc^Àã}À•@æ]^À[¦À•ã:^ÈÀÀ
- $\ddot{O}[\dot{A}]\dot{A}$ $\ddot{O}\dot{A}$ $\ddot{O}\dot{A}$ $\ddot{O}\dot{A}$ $\ddot{O}\dot{A}$ $\ddot{O}\dot{A}$ $\ddot{O}\dot{A}$ $\ddot{O}\dot{A}$ $\ddot{O}\dot{A}$ ~}&^¦Áæ}^Á&ã¦&~{•cæ}&^•ÊÁ¦^*æ¦å|^••Á[~Ác@^Áæ{[~}cÁ[~Á~•^Á c@^Á];[å~&ch@æ•Á;^&^āç^åh•ā}&^hāch¸æ•Á{æ}~~æ&c~;^åh[;h|æ•ch •^¦çã&^åÈ
- Y@^}h!^æ••^{à|ã}*Êhāchā•hā{][:cæ}chc[h~[||[¸h^ç^!^hc[!~~^h •]^&ā, &æcā[}Á]!^•&!āà^åÁā}Ác@ā•Á{æ}~æ|ÊÁ~•ā}*ÁæÁ&æ|āà!æc^åÁ c[¦~~^Á¸ \^}&@ĖÁÁT [•cÁ]æ¦c•Áæ¦^Á { æå^Á[~Á^āc@^¦Á { æ¦ã}^Áà!æ••Á

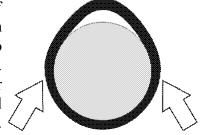
GENERAL CONVENTIONS

W}|^••Á[c@^!, ā•^Áā}•c!~&c^åÊAc@^Á~[||[, ā}*Ác^!{ ā}[|[*^Áæ}åA c^&@}ã~~^Áæ¦^Áæ••~{ ^åK

- Y@^}\da{} •c!~&c^&dc[h!^{[ç^\text{A}]} •&!^, \text{Eh[!h][[•^}\dag{#\text{Eh}]}
- Y@^}Áã}•c!~&c^åÁc[Áã}•cæ//ĒÁ•&;^\ Áã}ÊÁ[;Ácã*@c^}ÁæÁ
- Y@^}Aā}•c¦`&c^åAc[A¦^{[ç^Aæ}A±UqhÜā}*ÊA`•^Ac@^A]ā}&@A { ^c@ [åÁÇ•^^Á, * ` '^Áà^| [. DÁã-Á] [••ãà |^ÊÁ [¦Á `•^ÁæÁà ¦æ••ÊÁ $a = \frac{1}{4} \left(\frac{1}{4} \right) \left($ @æ¦å^}^åÁ•c^^|Á]ã&\•ÊÁæ•Ác@^^Á{æ^Áåæ{æ*^Á±UqÁÜã}*Á •^æ|ã} *Á•~;\~æ&^•ÈÁŒ||Á±UqÁÜã} *•Ác@æcÁæ;\^Á;\^ { [ç^åÁæ;\^Á åã•&æ¦å^åÁæ}åÁ!^]|æ&^åÁ ¸ãc@Áà¦æ}åÁ}^ ¸Á±UqÁÜã}*•È

Rkpej"Ogvjqf

Press upwards on sides of 'O' Ring to create a protrusion. Grab 'O' Ring or insert 'O' Ring tool at protrusion.



- V@^A-[||[,ā}*Áæ&¦[}^{•Áæ¦^A*•^åAc@;[**@[*ckc@^A {æ}*æ|KATÚAā•AT^åā*{AÚ;^••*;^LAPÚAā•APā*@AÚ;^••*;^LA ÚÞÁã•ÁÚæ¦cÁÞ~{à^lÈ
- ÍÈÁ Þ { à^|•Áā}Á]æ|^}c@^•^•Á|^~^|^}&^Ác@^Á\^^Á} ~ { à^|•Á [}\dag{a\dagan}\dagan\dagan\dagan\dagan}\dagan\d •cæc^ { ^}cĒÁ%ĒĒÈ'^ { [ç^Á±UqÁ!ā}*ÁÇIDÁ~; [{ ÈÈÈ+ÊÁc@^Á} ~ { à^;ÁIÁ ā•Ác@^Á\^^Á}~ { à^¦Ác[Ác@^ÁÙ]¦ã}*ÁÔæ¦¦ã^¦Á±UqÁÜã}*È

DISASSEMBLY PROCEDURES



NOTE: ÁÓ^-[;^Á]^;~[; {ã} *Áæ} ^Áåã•æ••^ {à| °ÉÁ;^~^;Á c [Ác@^Á^¢]|[å^åÁ]æ;c•Áå;æ.ã} *ÉÁ. @ã&@Á;^~^;^}&^•Áæ]|Á '^]/æ&^åÅ . ãc@Å}^ . ÈÁæ}åÅ { ~•cÅ} [cÁà^Á;^~•^åÅ ~}å^;Áæ}^Å &ã;&~{ •cæ}&^•ÁËÁ;^*æ;a|^••Á;~Ác@^Áæ*^Á;~Ác@^Á;^*~jæÉ c[;h[;h@[, h { `&@h`•^hāch@æ•h;^&^āç^åh•ā}&^hāch, æ•h/æ•ch •^/cã&^åÈ



CAUTION: Use only a plastic, brass or aluminium 'O' Ring removal tool (PN AT54) when removing 'O' Rings to prevent damage to the sealing surface. Even a small scratch across an 'O' Ring sealing surface could result in leakage. Once an 'O' Ring sealing surface has been damaged, the part must be replaced with new. DO NOT use a dental pick, or any other steel instrument.

DISASSEMBLY PROCEDURES

The following procedures show the correct method of servicing the dry sealed chamber on all STATUS first stage regulators. The dry sealed chamber contains the microelectronics for the STATUS regulator. This sub assembly is serviced using the same procedure regardless of the first stage model.

Removal of STATUS Dry Sealed Chamber

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Ò}åkÔæ]ÁÇFDÉÁHÜ^{[ç^kc@^ÁP^å![•cæcã&ÁÖãæ*@!æ*{Á~![{Ác@^Á
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•]æ}}^!h¢ŒVIÏDÁ*}•&!^, kc@^kÖāæ]@!æ*{hÔjæ{]h¢UDÈÁ





HÈÁ V@ā•Á,ā||Á!^{[ç^kc@^Á⊤æā}ÁÒ|^&c:[}ā&ÁW}āckÇIDÁĒc@^Á Ù]!ā}*ÁŒåb*•c^!ÁçTDÁæ}åÁc@^ÁÙ]!ā}*ÁçFFDĒ



NOTE: ÁV@^kc@ā&\}^•A[~kc@^k•]æ}}^;k{~°ck}[cd ^&&^^åkFF{{h[;kāch, ā|jh}[ch, chà^c, ^^}kc@^kc@;^æåkæ}åk c@^k 'æ}*^ÈMV@^k&[;;^&ch•]æ}}^;k&æ}hà^k]~;&@æ•^åk ~;[{kŒ]^\•kÇÜÞkŒVIĬD

IÈÁ Ü^ { [ç^Ác@^Á±UqÁ ¦ā}*ÁÇF€DÁ-¦ [{ Ác@^Á Öãæ]@¦æ* { ÁÔ|æ {]ÈÁÇJD







ÎÈÀ Ü^{[ç^kc@^ÅŠ[&æcā[}^LÚ|`*AÇFGDkæ}åÅ*•ā}*kæ}űUqh!ā}*Å
'^{[çæ|kc[[|kÇŒVÍIDk&æ!^~`||^Å];ā•^kc@^ÅÖāæ]@!æ*{Å
æ••^{à|^k[`ckà^k|^ç^!ā}*k^ç^}|^kæ![`}åÅc@^Ÿ@[|^Å
&ā;&`{~^!^}&^È







ĨĖĤ W•ā}*Åc@^ÁXæ|ç^ÅŠā~c^\!ÁV[[|ÁÇŒVGFDÁæ}åÅæÁHÐI+ÁÙ]æ}}^!Å
ÇŒVHHDĒÁ!^{[ç^Ác@^Á&]æ{]ā}*Á}`cÁÇFHDÁ~![{Ác@^ÁÖāæ]@!æ*{Á
æ••^{à|îÁÜ^{[ç^Ác@^Áåãæ]@!æ*{Á!ā}*ÁÇFIDÁ~![{Ác@^Áçæ|ç^Á
|ā~c^\!ÁCFÏD







ÌÈÁ Oæ;^~~||^h!^{[ç^hc@^hÚ;^••~;^hÙ^}•[;hÇFÍDh~;[{hc@^hXæ|ç^h Šã~c^¦ÁÇFÏDÈ



CAUTION: When removing the Pressure Sensor, do so by pulling gently on the black plug,

 $\begin{array}{l} W\bullet\bar{a}\}^*\hbar\&\}\hbar\pm U\phi!i\bar{a}\}^*\hbar!^{\ }\{\ [\varsigma\&|\hbarc[\]|\hbar\varsigma CEV\ i\ ID\hbar\&\&!^{\ }||^{\hbar}l^{\ }\{\ [\varsigma^\hbarc@^\hbar\pm U\phi!\bar{u}\bar{a}\}^*\hbar\varsigma F\widehat{1}D\hbar^{-}|\ [\ \{\hbarc@^\hbar*+|\ [\varsigma^\hbar\bar{a}\}\hbarc@^\hbar\times\&|\varsigma^\hbar\bar{s}\bar{a}-c^{\ }|\dot{E}\} \\ \end{array}$ JÈÁ



 $F \in \dot{E} \dot{A} = \hat{A} \cdot \hat{A}$ $^{\ }^{\&i}[\tilde{a}\tilde{a}\tilde{a}^* \tilde{a}^*\tilde$ c[[|È



 $FF\dot{e}\dot{A} = \ddot{A} - \dot{A} - \dot$ @[|åã}*Ác@^Á^å*^Á[~Ác@^Á&æ!!ã^!Áæ}åÁ]~•@ã}*Ác@^Áàæcc^!^Á[~cÁ æ•Á•@[¸ }È



This Ends Disassembly

Before starting reassembly, perform parts cleaning and lubrication according to the procedures outlined in 'Cleaning & Lubrication' on page 14.

REASSEMBLY PROCEDURES

Fitting of Dry Sealed Chamber

FÉÀ Q}•cæ||ÁæÁ}^¸Á*!^æ•^åÁ±UqİÜā}*ÁÇFÎDÁā}c[Ác@^Á*;[[g^Áā}Ác@^Á Xæ|g^ÁŠā-c^!ÁÇFÏDÁ*•ā}*Ác@^Á±UqİÜā}*ÁÜ^{{cga|Ac[[|ÁÇŒVÍIDÈ



 Λ

CAUTION: Take care not to scratch the 'O' Ring groove or damage the 'O' Ring with the sharp point of the tool.

GÈÁ Ú|æ&^ÁæÁ}^¸Áåãæ]@!æ* {Á!ã}*ÁÇFIDÁ[}c[Ác@^Áçæ|ç^Á|ã~c^!ÁÇFÏDÈ





HÈÁ Ù^&`;^Ac@^Açæ|ç^A|ā-c^;A-æ•c^}^;Ac[[]AÇCEVGFDAā}c[Ac@^Açā&^Aæ}åA cā*@c^}Ac@^A&|æ{]ā}*A}`cAÇFHDA[]c[Ac@^Açæ|ç^A|ā-c^;ACFÎDA`•ā}*A æAc[;``^A¸;^}&@EAV[;``^Ac[AFGĒFIÞ{È





CAUTION: Torque wrench must be kept straight so that the assembly does not slip out of the tool or damage to the valve lifter can occur.

IĖĀ Ö:[]kc@^Aåāæ]@!æ* { kæ••^ { à|^hc@![`*@hc@^A&^}c!^h@[|^h[-h c@^AXæ|ç^hÓ[å^hçFÌDhæ}åh]!^••hc@^hÖāæ]@!æ* { hçFIDhā}c[hc@^h Ó[å^ÈhÜ`}h^[`!h,}*^!hæ![`}åhc@^h^å*^h[~hc@^Aåāæ]@!æ* { hc[h {æ\^h•`!^hāchā•h]![]^!|^h•^æc^åÈ





ÍÈÀ Ú|æ&^Ac@^A|[&æcā[}A]|`*ÁÇFGDA[ç^!Ac@^A•[&\^cA¸āc@Ac@^A•{æ||A [çæ|A|`*Aæ|ā*}^åA¸āc@Ac@^A•{æ||A[çæ|A@[|^Aā}Ac@^A]!^••`'^A •^}•[!AÇFÍDÈ



îÈÀ Ú¦^••Ac@^A|[&æcā[}Á]|~*ÁÇFGDA,;{{|^A•[Ac@æckāck•āc•A'æck[}Ac@^A c[]A~æ&^A[~Ac@^A&[æ{]ā}*Á}~cÈÁÇFHD





Τέλ Ú[æ&^λċ@^λÛ]:ā}*ÂÇFFDÅ[}Âc@^λ&[æ{]ā}*Â}`cÂÇFHDÁ[ç^!Âc@^λ |[&æcā[}Â1]`*ÉÅ





ÌÈÁ Q}•cæ||ÁæÁ}^¸Á|~à¦ā&æc^åÁ±UqÁ¦ā}*ÁÇF€DÁ[}c[Ác@^ÁÖāæ]@¦æ*{Á Ô|æ{]ÁÇJDÈ



JĖÁ V@!^æåkc@^ÁÖāæ]@!æ*{ ÁÔ|æ {]ÁÇJDÁ[}c[kc@^ÁXæ]ç^ÁÓ[æ^ÁÇFÌDĖÁ
{ æ\ā}*Å•~`!^kc@æckc@^ÁÜ]!ā}*ÁÇFFDÁ!^{ æā}•Á[}kc@^ÁÔ]æ {]ā}*Á

Þ`cÁÇFHDĒÁ`}cāļÁ@æ}åkcā*@cÉÁW•ā}*kæÁHI { { k[]^}Å^}å^åÁ
•]æ}}^!ÁÇÜÞÁŒVH€DÁcā*@c^}Ác@^ÁÖāæ]@!æ*{ ÁÔ|æ {]ÁÇJDÁ`}cāļÁ
c@^!^Áā•Á { ^cæ|Ác[Á { ^cæ|Á&[}cæ&cĒ









CAUTION: Ensure that while tightening the diaphragm clamp the regulator remains vertically upright so that the location plug does not become dislodged. If this occurs the electronic unit will not assemble into the regulator correctly.

F€ÈÁÜ^, cÁc@^ÁŠ[*[ÁÜã}*ÁÇÍDÈ



NOTE: hÜ^^!hc[hc@^!æ]]![]!äæc^!, !•cl•cæ*^!{æ}`æ|hc[h&[{Ë]|/c^!hc@^!æ•^{{a}|^{2}}

SETTING OR ADJUSTING THE FIRST STAGE

A

WARNING: Compressed air can be highly explosive and is dangerous if misused. Ensure cylinder valve is opened slowly. Use Eye and Ear Personal Protective Equipment when performing any tests involving Compressed air.

FÉÁ Œcæ&@Ác@^Á, !•cÁ•cæ*^Á
Ç, āc@Á}[ÁÓ|æ}\ā}*Á
Ú|`*•Á, cc^åDÁc[ÁæÁ~`||^Á
&@æ!*^áÅGHGÁ[!ÁH€€Á
àæ!Á&^[ā}å^!ÉÁÚ][, |^Á
[]^}Ác@^Á&^]ā}å^!Á
Çæ|Ç^ÉÁc@ā•Á,ā|Á!^{ [Ç^Á
æ}^Â]æ!cä&|^•Á[!Á
&[}cæ{ā}æ}c•Á-![{Ác@^Á
.:!•cÁ•cæ*^È



GÈÁ 0} • cæ||Á}^, Á|`à lā&æc^åÁ
± Uqlā}*•Á[} kæ||Á[-Á
c@^kÓ|æ}\ā}*hÜ|`*•kÈÁ
W•ā}*kækí { { kŒ||^}k
\^^Èkā}• cæ||kæ||Á[-kc@^k
Ó|æ}\ā}*hÜ|`*•kā}c[kc@^k
Xæ|Ç^kÓ[å^È



HÈÁ Œccæ&@ÁæÁ T ÈÚÈÁc^•cÁ *æ`*^ÁÇ€ËG€Áàæ¦DÁc[ÁæÁ æ}åÁc@¦^æåÁc@^Á@[•^Áã}c[Á æÁ T ÚÁÚ [¦cÈÁÁQ~Á^ [ˇ¦Ác^•cÁ *æ * * ^ å [^ • Á } [cÁ@æc ^ Á æ}Á[ç^¦Á]¦^•• ' |^Á¦^|ã^-Á çæ|ç^ÊÁ^[˘Á{ ˘•cÁæccæ&@Á æÁ];[]^;[^Áæåb~•c^åÁ •^&[}åÁ•cæ*^Ác[Ác@^Á, !•cÁ •cæ*^Ác[Áæ&cÁæ•Ác@^Á¦^[ã^~Á çæ|ç^ÊÁã}Á&æ•^Á[~ÁæÁÞÈŒÁ Š^æ\ÈÁÁ TŒSÒÁÙWÜÒÁ ÓŠŒÞSQÞÕÁÚŠWÕÙÁ ΆÒÁQÞÙVŒŠŠÒÖÁQÞÁ ŒÞŸÁUÚÒÞÁÚUÜVÙÈ



Æ

CAUTION: All the pressure gauge rapidly exceeds 11 bar, then there is a HP leak. Quickly close the cylinder valve and purge the regulator. Refer to the troubleshooting table for the causes of the leak.



ĺĖĤ Ô[[•^kc@^Á&^[ā}ā^¹kçæ|ç^hæ}åhā^Ē]!^••ˇ¡ā•^kc@^Á!^* |æc[;h
à ^k[]^}ā}*kc@^Á*æˇ*^k!^|ā^-kçæ|ç^h[!hà^h]!^••ā}*kc@^Á]`!*^h
à ˇcc[}h[-kc@^Á•^&[}åh•cæ*^h!^*ˇ|æc[!ĕĤÔ|[•^kc@^h!^|ā^-kçæ|ç^h
æ}āh!^Ē]¦^••ˇ¡ā•^kc@^Á•^•c^ {ĔĤV@^Å⊤ĚÜĖ•@[ˇ|āh•cā]|h!^æåh
à^c¸^^}从Ыæ}åhF€hàæ!ĔĤQ-kc@^h]!^••ˇ!^h!^æåā}*hā•hâā--^!^}ch
c@æ}hc@^h[!ā*ā}æ|h•^ccā}*Ĕh!^]^æch•c^]•hHhæ}åh!hˇ}cā|hc@^Å⊤ĔÜĔh
ā•h•cæà|^Ĕh

ÎÈÁ Q}•^!cÁæÁ}^ , Aàæcc^!^Aã}c[Ác@^Aàæcc^!^A&æ!!ã^!ÁÇÍDÁÈÁÚ|æ&^Á[}^Á •āå^Á[~Ác@^Áàæcc^!^Áā}c[Ác@^Á&æ!!ā^!Á~}å^!}^æc@Ác@^Ácæà•Áæ}åÁ] | ^-•Ác@^Á|^ { æã}ã} *Á•ãå^Áã}c[Á] [•ācã[}Á¸ãc@Ác@^Á±ÉqÁ•ãå^Á~]ÈÁ Ù|ã&^Ác@^Á&榦ã^¦Áã}[Ác@^Á{æã}Á^|^&c¦[}ã&Á~}ãcÈ









CAUTION: Ensure that the battery is inserted with the positive (+) side up, failure to do so will destroy the electronic unit and pressure sensor.

Final Assembly

Yãc@Ác@^Á¦^*~|æc[¦Á•cã||Á] |^••~| |ã•^åÊÁã}•^| cÁc@^Á { æã}Á^|^&c¦[}ã&Á~}ãcÁ ÇIDÁã}c[Ác@^ÁÖãæ]@¦æ* { Á Ô|æ {]ĀÇÎDÈÁÁ



Y@ā|•ckæ]]|^ā}*Áç^\^Á*^}c|^Áå[, } , æ¦åÁ]!^••~`!^ÊÁ;[cæc^Á c@^Á^|^&c! [} ã&Á ` }ācÁ ` } cā|ÁæÁ] [•ācāç^Á| [&æcā [}Áā•Á~ [` } åÈÁÁÚ!^••Á c@^A^|^&c|;}ã&A^}}āch@;{^A+;IAc@æcÁāch+āc+A2^|;,Ac@^A^}&A;~Ac@^A åãæ]@¦æ* { Á&|æ {]ÈÁ





HÈÁ Yāc@ā}ÁæÁG€Á•^&[}åÁ]^¦ā[åÊÁc@^ÁŠÔÖÁ•@[ˇ|åÁåã•]|æ^Á±USokc[Á •ã*}ã~^Ác@æcÁc@^Á!^* ~|æc[¦Áã•Á•^cÁ&[¦¦^&c|^È

NOTE: 4Q-4cQ^4ŠÔÖ4å[^•4}[c4åå•]|æ^4æc4æ||É4å^Ë];^•••`;ã•^4 c@^Á;^*~|æc[;Á&[{]|^c^|^Á[~Á*æ•Áæ}åÁ] æācÁG€Á•^&[}å•Áà^~[;^Á ;^]^@ca} *Á•c^]ÁGÈÁÁQ~Ác@^A];^•• `;^Áã•Á&[;;^&cÊÁà `cÁc@^;^Áã•Á •cā||Á} [Áåã•]|æˆÉÁ[;Ác@^ÁŠÔÖÁåã•]|戕Á±PQqÊÁ±ŠUqÊÁ[;Á±ÙXÔqÁ]|^æ•^\d;^~^;\dc[\dc;[~a|^\d•@[[ca] *\dcæa|^\d[]\d]æ*^\dFFE

Q} •cæ||ÁæÁ}^ . ÁP^å¦|| •cæcã&ÁÖãæ*@¦æ* { ÁÇGDÁã}c||Ác@^Á ^}çã¦[}{^}cæ|Á^}åË&æ]ÁÇFDÈ





CAUTION: Prior to re-assembling the environmental end cap, the system MUST be depressurised. This avoids the possibility of the hydrostatic diaphragm sticking to the top of the LCD display and dislodging the electronic unit. For the same reason the hydrostatic diaphragm must not be pressed whilst tightening the end cap into place.

- ÍÈÁ $V@!^2a\mathring{A}c@^\mathring{A}O)c\tilde{a}![] \{^c\mathring{A}c@/\mathring{A}O)c\tilde{a}.$ Ô|æ {]ÁÇJDÁ~ }cā|Á@æ} åÁcā*@cÈÁW•ā} *Ác@^ÁÔÁÙ]æ}}^:ÁÇÚÞÁŒVH€DĒÁ cã*@c^}Ác@^ÁÒ}çã¦[} { ^}cæ|ÁÒ}åÁÔæ]ÁÇFDÁ`}cã|Ác@^¦^Áã•Á { ^cæ|Á c [Á { ^cæ|Á& [} cæ&cÈÁ
- U}&^ác@^Á^}çã¦[}{^}cæ|ÁÒ}åÁÔæ]ÁÇFDÁã•Á~~||^Ácā*@c^}^åÉÁc@^Á ´|æc[¦Á&æ}Ác@^}Áà^Á¦^Ë]¦^••`¦ã•^åÁ~[¦Á,}æ|Ác^•cã}*ÈÁAQ~Ác@^Á ŠÔÖÁãã•]|æ^•\±PQqE\±ŠUqE\[;|\±ÙXÔq\]|^æ•^\\;'^~^;\kc[kc;[`à|^\ •@[[cã] *Ācæà]^Á[}Á]æ *^ÁFFÉĀ





ΪÈÁ Ô|[•^Ác@^Á&^|ã}&^¦Áçæ|ç^Áæ}&Á&^]¦^••`¦ã•^Ác@^Á¦^*`|æc[¦ÉÁ Ü^{ [ç^Ác@^Ác^•cÁ*æ**^Áæ}åÁ¦^ã}•cæ||Ác@^ÁÓ|æ}\ã}*ÁÚ|**È

This Ends Reassembly

IMMERSION TEST

 $Y \tilde{a} c@ h c@ h (\tilde{a} \tilde{a}) * h (\tilde{a}) *$ •^&[}åÁ•cæ*^Áã}•cæ||^åÊÁ•|[| ^Á[]^}Ác@^Á&^[ã}å^!Áçæ|ç^Áæ}åÁ];^•• `;ã•^Ác@^Á,;•cÁ•cæ*^ÉÁÔ[{][^c^]^ÁÙ`à{^;*^Ác@^Á,;•cÁ -cæ*^kā}h-\^-@h, æc^\hæ}åh&@^&\h-[\h|^æ\•Ëh



NOTE:ÁHÖ[Á}[cÁ&[}~~•Mà~àà|^•Á~;[{Ác¦æ]]^åÁæã;Á¸ãc@ÁæÁ æÁ•c^æå ^Á& [} •cæ }cÁ•c ;^æ { È

- Υ• { ã} *Ác@æcÁc@^!^Áæ!^Á} [Á|^æ\•ÊÁ&| [•^Ác@^Á&^|ã}å^!Áçæ|ç^Á æ}åÁå^]¦^••ˇ¦ã•^Ác@^Á¦^*ˇ|æc[¦ÈÁÜ^{[ç^Ác@^Á, ;•cÁ•cæ*^Á~;[{Á c@^Ácæ|c^Áæ}åÅ•^&~;^Ác@^ÁÚ;[c^&cāç^ÁÔæ]Áā}Á]|æ&^Á . āc@Ác@^Á Ÿ[\^AÔ[æ{]ÁÙ&!^, ÈAQ~Ac@^A!^* |æc[!Á@æ•ÁæÁÖQÞÁ&[}}^&cã[}Á '^]|æ&^Ác@^ÁÚ¦[c^&cãç^ÁÖQÞÁÔæ]E
- Q~ÁæÁ|^æ\Áã•Áå^c^&c^åÊÁ}[c^Ác@^Á•[~;&^Á[~Ác@^Á|^æ\Áæ}åÁ;^~^;Ác[Á c@^\dc![`à|^•@[[cā]*\dcæà|^\d[]\d]æ*^\AFF\~[!\d][••āà|^\d&æ`•^•\@}\ad &[!!^&cãç^Áæ&cã[}•È

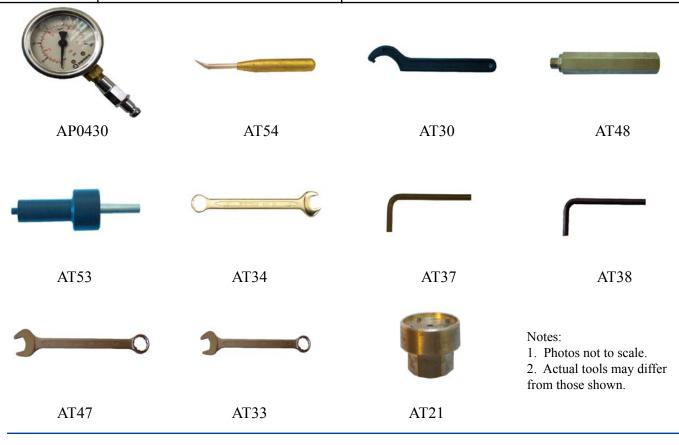
This Ends Testing

SYMPTOM	POSSIBLE CAUSE		TREATMENT	
	FÈÁ PÚÁXæ ç^ÁÇFIDÁã•Á¸[¦]	}Á[¦Áåæ{æ*^åÈÁ	FÈ Ü^] æ&^ÁPÚÁXæ ç^È	
	GÈÁ Ü^{ [çæà ^ÁPÚÁXæ ç^/ æ*^åÈÁÇØÙÜÁU} ^D	ÁÙ^æcÇFHDÁã•Á¸[¦}Á[¦Áåæ{Ë	GĖÁ Ü^] æ&^ÁÜ^ { [çæà ^ÁPÚÁXæ ç^Á Ù^æcÈ	
	HÈÁ ±Uợl: [çæà] åæ {æ*^åÅ[;Á;[;}È	^ÁPÚÁXæ ç^ÁÙ^æcÁÇFGDÁã∙Á	HÈÁ Ü^] æ&^Á±Uḍ¦ã}*È	
Pā*@ÁÚ¦^••`¦^ÁÔ;^^] Çæ •[Á&æ`•^•Á•^&[}åÁ•cæ*^Á ^æ\•D	IÈÁ PÚÁÓæ æ}&^ÁÚ `*Áã}c^	}æ Á¸æ Áåæ{æ*^åĖ	IĖ Ü^] æ&^ÁPÚÁÓæ æ}&^ÁÚ ~*È	
	ÍÈÁ ±Uợl¦ã}*Áã}•ãå^ÁPÚÁÓæ æ*^åÁ[!Á¸[!}È	æ}&^ÁÚ ˇ*ÁÇFÎDÁã•Áåæ{Ë	ÍÈÁ Ü^] æ&^Á±U¢Á¦ã}*È	
	ÎÈÁ ±Uḍ¦ā}*Á[}ÁPÚÁÓæ æ}&	&^ÁÚ `*ÁÇFGDÁã•Áåæ{æ*^åÁ	îÈÁ Ü^] æ&^Á±U¢Á¦ã}*È	
	ĬĔŴ₽ŰÁXæļç^ÁŮ^æċÁã}ÁXæļç åæ { æ*^åĒ	^ÁÓ[å^ÁÇFFDÁã•Á¸[¦}Á[¦Á	ΪĖÁŀÜ^] æ&^ŀkXæ ç^ŀkÓ[å^È	
	FÈÁ Ó æ}\ã}*ÁÚ ~*Á±UqÁlã} åæ{æ*^åÈÁ	*•ÁÇFGÊGÌÊGJDÁæ¦^Á¸[¦}Á[¦Á	FÈÁ Ü^] æ&^Á±UḍÜã}*È	
	GÈÁ Öãæ]@¦æ* { ÁÇJDÁ ¸ [¦}Á	[ˈlÅåæ { æ*^åÈ	GÈÁ Ü^] æ&^Áåãæ]@¦æ* {È	
		HæÈÁÁÁXæ ç^ÁÓ[å^	HæÈÁÁÁÜ^] æ&^ÁXæ ç^ÁÓ[å^È	
	HÉÁ Öãæ]@læ* {Á•^æ ã}*Á •~`!~æ&^Áåæ {æ*^åÉ	HÈÁ Öãæ1@!æ* { Á•∧ælã}*Á HàĚÁÁÁÖãæ]@¦æ* { ÁÔ æ {]		HàĚÁÁÁÜ^] æ&^ÁÖāæ]@¦æ* {ÁÔ æ {]È
Ò¢c^{}@ Áæā¦Á ^@\@*^		H&ÈÁÁÁXæ ç^ÁŠã~c^¦	H&ĚÁÁÁÜ^] æ&^ÁXæ ç^ÁŠā~c^¦È	
[HắtÁÁÁÔ æ {]ã}*ÁÞ~c	HåĚÁÁÁÜ^] æ&^ÁÔ æ {]ã}*ÁÞ~ċÈ	
åå•c^}å^åÅ[¹Åàˇ¹•c	IÈÁÁÁÔ[æ{]ã}*Á}~cÁÇFHDÁ[[[•^Ė	IĖÁÁÁVā*@c^}ÁÔ æ{]ā}*Á}`ċĖ	
	ÍÈÁÁÁÚ¦^••~¦^ÁÙ^}•[¦Á±UqÁ¦	ã}*Áåæ{æ*^åÈ	ÍÈÁÁÜ^] æ&^Á±U¢İÜã}*È	
	ÎÈÁ Ô[}}^&c[¦Á±Uql¦ã}*ÁÇF	GDÁ,[¦}Á[!Áåæ{æ*^åÈ	ÎĖ Ü^] æ&^Á±UḍÜā}*È	
	ĨÈÁ Öãæ]@¦æ* { ÁÔ æ {]ÁÇÎDÁ [[•^È		ΪĖĀ Vā*@c^}ĀÖāæ]@!æ* { ĀÔ æ {]È	
	ÌÈÁ ±UqÁ¦ā}*Á[}ÁPÚÁÓæ æ}&^ÁÚ ~*ÁÇFÏDÁ¸[¦}Á[¦Á åæ{æ*^åÈ		ÌÈÁ Ü^] æ&^Á±UḍÜā}*È	
	FÈÀ Ô^ ā}å^¦Áçæ ç^Á}[cÁ&[{] ^c^ ^Á[]^}È		FÉÁ U]^}Áçæ ç^ÊÁ&@^&\Á, Á]¦^••`¦^È	
Ü^•c¦ā&c^åÅæä¦Å' [¸Å[¦Å@ā*@Åā}@æ æË	GÈÁ Ô^ ā}å^¦Áçæ ç^Á¦^~~ã¦^•Á•^¦çã&ã}*Á		GĖÁ Ù¸āc&@Ác[Áåã~~^¦^}cÁ&^ ã}å^¦Ė	
cā[}ki/•ā•cæ}&^kc@;[~*@k^}cāi^k •^•c^{	HÈÁ Ô[}ã&æ ÁØã c^¦ÁÇHÍDÁ[;/ & [**^åÈ	ÁÖã•&ÁØã c^¦ÁÇGFDÁã•Á	HÈÁ Ü^] æ&^Á, c^¦È	
	IÈÁ X^¦^ÁŠ[¸Á⊤^åãˇ{ÁÚ¦	^••`¦^ <u>È</u>	IÈÁ Œåbˇ•cĥ⊤^åãˇ{ÁÚ¦^••ˇ¦^Ác[Áà^Ë c¸^^}ÁJÁæ}åÁF€Áàæ¦È	

SYMPTOM	POSSIBLE CAUSE	TREATMENT	
	FÈÁÁÁÜ^*ˇ æc[¦Á}[cÁ]¦^••ˇ¦ã•^å	FÈÁÁÁÚ¦^••~¦ã•^Á¦^*~ æc[¦Áæ}åÁ¦^Ë&@^&\È	
	GÈÁÁÁG€Á•^&[}åÁ]!^••`!ã•^åÁ¦^æåã}*Ácã{^Á]^¦ã[åÁ @æ•Á}[ck æ]•^å	GÈÁÁÁÖ^Ē]¦^••`¦ã•^Á¦^*` æc[¦Á&[{] ^c^ ^ÈÁ ¸æãcÁG€Á•^&[}å•Áæ}åÁ¦^Ē]¦^••`¦ã•^È	
D [Öåa l l m²	HÈÁ Þ[Áàæcc^¦^	HÈÁ Q}•^¦cÁ}^¸Áàæcc^¦^È	
Þ[ÁÖã•] æ^	IÈÁ Ú¦^••~`¦^Á•^}•[¦Á-æ~ c^	IÈÁ Ü^] æ&^ÁÚ¦^••~`¦^Á•^}•[¦E	
	ÍÈÁ ⊤æã}Á^ ^&c¦[}ã&Á~}ãcÁ~æ~ c^	ÍÈÁ Ü^] æ&^Á⊤æã}Á^ ^&c¦[}ã&Áˇ}ācÈE	
	îë ó [&\^åÁ•^}•[¦	ÎÈÁ Ü^ { [ç^Áå^à¦ã•Á~¦ [{Á`}å^¦•ãå^Á[~Á çæ ç^Á ã~c^¦È	
Öå•] æ^Á±ŠUql~[[¸^ålà^Á±ÙXÔql	FÈÀÀÀT^åã~{À]¦^••~¦^Ac[[Á [,	FÈÀÀÁŒåbˇ•cÁ⊤^åãˇ{ÀÚ¦^••ˇ¦^Ác[Àà^c¸^^}Á JÁæ}åÁF€Ààæ¦È	
'æ•@ā}*	GÈÁÁÁØæˇ c^Á^ ^&c¦[}ã&•	GÈÁÁÁÜ^] æ&^Á^ ^&c¦[}ã&•E	
Öã•] æ^Á±USqí~[[¸^å/à^Á±PQí	FÈÁÁÁPā*@Á]¦^••`¦^Á&;^^]	FÈÁÁÁÚ ^æ•^Á•^^ÁVæà ^ÁF	
æ}åÁc@^}Á±ÙXÔqÁ'æ•@ã}*	GÈÁÁÁØæˇ c^Á^ ^&c¦[}ā&•	GÈÁÁÁÜ^] æ&^Á^ ^&c¦[}ā&∙E	
	FĚÁÁÁ T^åã~{Á]¦^••~¦^Ác[[Á@ã*@	FÈÁÁÁŒåbˇ•cÁ⊤^åãˇ{ÁÚ¦^••ˇ¦^Ác[Áà^c¸^^}Á JÁæ}åÁF€Áàæ¦È	
Öã•] æ^Á±PQql~[[¸^åÁà^Á±ÙXÔql 'æ•@ã}*	GÈÁÁÁPã*@Á]¦^••ˇ¦^Á&;^^]	GÈÁÁÁÚ ^æ•^Á•^^ÁVæà ^ÁF	
	HÈÁÁÁØæˇ c^Á^ ^&c¦[}ā&•	HÈÁÁÁÜ^] æ&^Á^ ^&c¦[}ã&•E	
	FÈÀÁŒ}}~æ Á&[~}c^¦Á^¢]ã¦^å	FÈÁÁÁÜ^] æ&^Áàæcc^¦^	
Öã•] æ^ÁÁ′æ•@ã}*Á±ÙXÔqÁ	GÈÁÁÁW•æ*^Á&[~}c^1Á^¢&^^å^å	GĖÁÁÚÜ^] æ&^Áàæcc^¦^	
	HÈÁÁÁØæˇ c^Á^ ^&c¦[}ā&•	HÈÁÁÁÜ^] æ&^Á^ ^&c¦[}ã&•E	

EÁÒ|^&c;|}ã&•Á¦^]|æ&^{^}cÁ\āchŒÚ€GGÌh&[}•ã•c•Á[-Á⊤æã}hÒ|^&c;|}ã&hW}āchÇIDhæ}åhÚ;^••ˇ;^ÁÙ^}•[;hÇFÍDÈHAV@^•^hæ;^A}[}Ĕ•^;çã&^æà|^hāc^{•ÈhQ-Á
c@^^hæ;^håæ{æ*^åh[;h~æˇ|c^Èhà[c@hc@^h⊤æã}hÒ|^&c;|}ā&hW}āchæ}åhU;^••ˇ;^hÙ^}•[;h{~`•chà^h^¢&@æ}*^åh~[;h}^¸h&[{][}^}c•h-;[{hæh!^]|æ&^{^}ch}
\āchæ•hc@^^hæ;^h-æ&c[;^h&æ||āà;æc^âhæ•hæh]æã;E

PART NO.	DESCRIPTION	APPLICATION
ŒÚ€IH€	QÈÚÉÁc^•cÁ*æ**^	Q}c^\ { ^åãæc^Á] \^••~`\^Ác^•cã}*
ŒVÍI	±UqÁÜã}*Á¦^{ [çæ Á]ã&\	±UqİÜâ}*Á¦^{ [çæ
ŒVH€	ÔÁ•]æ}}^¦	Ü^ { [çæ Á[~ÁÖãæ]@¦æ* { ÁÔ æ {]ÁBÁÒ}åÁÔæ]
ŒVIÌ	Øã¦•cÁÙcæ*^ÁY[¦\ÁPæ}å ^	Ô æ {]ã} *ÁXæ ç^ÁÓ[å^Áã}ÁXã&^
ŒVÍH	Ü^ { [çæà ^ÁPÚÁXæ ç^ÁÙ^æÁV[[Ü^ { [çæ Áæ}åÁā}•cæ æcā[}Á[-ÁPÚÁXæ ç^ÁÙ^æcÁÇØÙÜD
} Đæ	V[¦~~^Á¸!^}&@ÉÁÞ{Á[!Á à~Ð~c	Q}•cæ æcā[}Á[~ÁÓæ æ}&^ÁÚ ~*ÁBÁÖQÞÁÔ[}}^&cā[}
} Đæ	î { { hCE ^}h\^^hàāch~[hc[~~^h]. ^}&@	Q}•cæ æcā[}Á[~ÁÓæ æ}&^ÁÚ ~*ÁBÁÖQÞÁÔ[}}^&cā[}
ŒVHI	FFÐFÎ+Á•]æ}}^¦Á	P[•^ÁÜ^{ [çæ
ŒVHÏ	Í { {ÁŒ ^}Á\^^	Ó æ} \ã} *ÁÚ ~*•Á
ŒVHÌ	Î { { kŒ ^}k\^^	Ü^ { [çæ Á[~ÁÓæ æ}&^ÁÚ ~*ÉÁÖQÞÁÔ[}}^&cā[}ÁBÁÙ]¦ā}*Á Œåb~•c^¦
ŒVIÏ	HΙ { {Á[]^}Á^}å^åÁ•]æ}}^\Á	Ü^{[çæ Å[~ÅÓ æ&\ÅÚ^æ¦ ÊÅV~}*•c^}Åæ}åÅÝVÝÅÖãæ]@¦æ*{Å Ô æ{]
ŒVHH	HÐI+Álā}*Á•]æ}}^lÁ	Ü^ { [çæ Á[~ÁÔ æ {]ã} *ÁÞ~c
ŒVGF	Xæ ç^ÁŠā~c^\ÁØæ•c^}^{	Øæ•c^}ā}*Áæ}åÁ`}~æ•c^}ā}*Á[~Á& æ{]ā}*Á}`cÁBÁçæ ç^Á ā~c^¦
} Đæ	GHGÁ[¦ÁH€€Áàæ¦ÁÖãçã}*Á&^ ã}å^¦	V^•cã} *Á[~Á¦^*~ æc[¦



LUBRICANT / CLEANER	APPLICATION	SOURCE					
Ô@¦ā•c[ËŠˇà^ſÅT ÔÕËFFF ÇŠˇà¦ā&æ}cD	ŒIJŀŧŪၛÜã}*Á•^æ •	Œ]^\•ÁTælā}^ÁÒ``ā] {^}cÁŠcå ÚÞÁŒÚFIJÍÉÁ[¦					
		Š`à¦ā&æcā[}ÁV^&@}[[*ā^• HF€Á⊤[¦c[}ÁÙc¦^^c Ræ&\•[}ĖÁU₽ÁÁIÍÎI€ĖÁWÙŒ Ç쀀DÁIÏÏĖÌÏ€I					
CAUTION:ÁÁÙāJā&[}^Á!`àa @]] ^Á*!^æ•^Á[!Á•]!æ^Ác[Á• { æ^Á&æ`•^ÁæÁ&@^ { ā&æJÁà!^	CAUTION:ÁÁÙājā&[}^Á¦`àà^¦Á¦^`ĭā¦^•Á}[Á `à¦ā&æcā[}Á[¦Á]¦^•^¦çæcāç^Ác!^œc {^}cÈÁÁÖUÁÞUVÁ #]] ^Á*!^æ•^Á[¦Á•]¦æ^Ác[Á•ājā&[}^Á¦`àà^¦Á]æ¦c•ÁÇ^*ÈÁÖāæ]@¦æ* {ÊÁÒ¢@æ`•cÁXæļç^•ÈDÁÁÖ[ā}*Á•[Á { ###################################						
Óā[¢ ÇÔ ^æ}ā}*Áæ*^}cD	Óā[[*ā&æ Áā { {^!•ā[}Å'`āåÁ~[!Á¦^`•æà ^Á •cæā} ^••Á•c^^ Áæ}åÁà¦æ••Á]æ¦c•È	Ù[^}cÁÖāç^¦•ÁŠcå FGGĒFGÌÁŠæ\^ÁÜåĒÁÚ[¦c• { [˘c@Ē Pæ}c•ĒÁÚUFÁI PP					
Y @āc^Áåā•cā ^åÁçā}^*æ¦ÁÇF€€Á*¦ÈD ÇÔ ^æ}ā}*Áæ*^}cD	Œ&āáÁàæc@Á~[ˈlÁ¦^ઁ•æà ^Á•cæā} ^••ÁÁ •c^^ Áæ}āÁà¦æ••Á]æ¦c•È	%P[ˇ•^@[å+Á*¦æå^					
CAUTION:MÖ[Á}[chˇ•^h { ˇ'lāæcā&hæ&āåh~['lhc@^h& ^æ}ā}*h[~hæ}^h]ælc•ÈhÒç^}hā~h•c![}* ^håā ˇc^åĖh { ˇ'lāæcā&hæ&āåh&æ}h@æ! { hk@![{ ^h] æcā} *hæ}åh { æ^h ^æç^hæh!^•āå ˇ^hc@æchā•h@æ! { ~ˇ hc[h±UqhÜā} *h •^æ •hæ}åh[c@^!h]ælc•							
Šā~~ãåÁåã•@¸æ•@ã}*Áå^c^¦*^}cÁåã ~c^åÁ ¸ãc@Á¸æ!{Á¸æc^! ÇÔ ^æ}ã}*Aæ*^}cD	Ö^*¦^æ•^¦Á~[¦Áà¦æ••Áæ}åÁ•cæã} ^••Á•c^^ Á]æ¦c•LÁ*^}^¦æ Á& ^æ}ã}*Á•[`cā[}Á~[¦Á] æ•cã&Áæ}åÁ¦`àà^¦	‰P[~•^@[å+Á*¦æå^					

General Cleaning of all Parts

- FÉÁ Ú|æ&^kæ||Á&[{][}^}c•Áā}kæ}Á`|c!æ•[}ã&Á&|^æ}ā}*Áàæc@Á&[}cæā}ā}*Áæ}Á#]];[]¦äæc^k&|^æ}ā}*Á•[|~ca[}Éh•~&@kæ•ÁÓā[¢É
- GÉÀ V@^&&[{][}^}c=h=@[~|āhà^h&|^æ}^āh~[;hĨh{ā}`c^=Éhå^]^}åā}*h~]]}hc@^ā;h&[}åācā[}ÉhŠ[}*^;h&|^æ}ā}*hcā{^-A}{æ^h~=^āhā~h} ;^~~ā;^åE
- HÈÁ Üã}•^Ác@^Á&[{][}^}c•Áã}Á,æ¦{Á~¦^•@Á,æc^¦È
- IÈÁ V@^Á&[{][}^}c•Á•@[~|åÁc@^}Áà^Áà|[_, }Áå!^Á[;Á|^~cÁc[Áå!^Á}æc~!æ||^È

Lubrication and Dressing

Œ||Á±UqłÜā}*•Å•@[ˇ|åÅà^Á|ˇà¦ā&æc^åŸāc@ÁÔ@¦ā•c[ĒŠˇà^¼ŤÔÕĒFFFFÉÅHÖ!^••Åc@^Á±UqłÜā}*•Ÿāc@ÁæÁç^!^Á|ā*@cd,|{¼[-¼*;^æ•^ÊÆæ}åÁ;^{[ç^Áæ}^Áçã•āà|^Á^¢&^••Åà^Å;^}}}å;*Åc@^Á±UqhÜā}*Åà^c¸^^}Åc@*ıC[ĖŠˇà^¼*;^æ•^ÊÆæ•Åc@āa|¼^¢&^••āç^Ææ{[ˇ}c•Å[-ÁÔ@¦ā•c[ĒŠˇà^¼*;^æ•^ÊÆæ•Åc@āa-Ÿā||Ææc;æ&cd]æ;cæ&|æc^¼ {æc^;Åc@æcd {æ^Á&æ*•^Áæ*e^A£æ•Å

Nitrox

 $Y@^{\hat{a}} = \frac{-4}{16} \left[\frac{-4}{16} \left[\frac{4-2}{16} - \frac{4}{16} \left[\frac{4-2}{16} - \frac{4}{16} \right] - \frac{4}{16} \left[\frac{4-2}{16} - \frac{4}{16} \right] - \frac{4}{16} \left[\frac{4-2}{16} - \frac{4}{16} - \frac{4}{16} \right] - \frac{4}{16} \left[\frac{4-2}{16} - \frac{4}{16} - \frac{4}{16} \right] - \frac{4}{16} \left[\frac{4-2}{16} - \frac{4}{16} - \frac{4}{16} - \frac{4}{16} \right] - \frac{4}{16} - \frac{4}{$

Œ|c@[~*@h!^*~\@c[;h•^&[}åh•cæ*^h&[{][}^}c•hæ;^h}[ch^¢][•^åhc[h@ā*@h];^••~;^hÒŒÞĖhŒ]^\•h;^&[{ {^}å•hc@æchc@^h•æ{^h&|^æ}ā}*h];[&^å*;^•hà^h-[]][¸^åh-[;hc@^h&[{]]^o^h;^*`]æc[;ÈhV@ā•h];^ç^}c•hc@^h][••āàā]āc^h[-h&;[••h&[}cæ{ā}æcā[}hæ}åh*~æ;æc]*bvo^•hc@^h&@^h][••āàā]āc^h[-h&;[••h&[]cæ{ā}æcā[}hæ}åh*~æ;æc]*bvo^•hc@^h&@^h][••āàā]āc^h[-h&;[••h&[]cæ{ā}æcā[}hæ}åh*~æ;æc]*bvo^•hc@^h&@^h][••āàā]āc^h[-h&;[••h&]cæ{ā}æcā[}hæ}åh*~æ;æc]*bvo^•hc@^h



WARNING: Please check the regulations regarding Nitrox in your particular country as this may differ from Apeks standard policy.

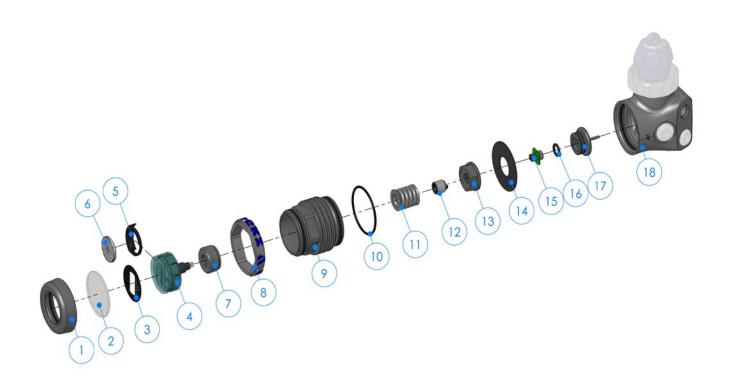
PART NUMBER	DESCRIPTION / KEY NUMBER	TORQUE	
ŒÚÏÍ€Í	Ô æ{]ã}*ÁÞ~cÁÇFHD	FIÁÞ{ÁÐÁF€ÈHGÍÁ à~È~c	

TEST CONDITION		ACCEPTABLE RANGE	
Š^æ\ÁV^∙c	Q} ^ck]¦^••~`¦^ÁFÍ€ÁĒÁGHGÁàæ¦	Þ[ÁŠ^æ\•Áæ [¸^åÁ	
T^åã~ { ÁÚ¦^••~¦^	Q} ^cá]¦^••~`¦^ÁFÍ€ÁĒÁGHGÁàæ¦	JÁc[ÁF€Áàæ1Á	
T^åã~ { ÁÚ¦^••~¦∧ÁÔ¦^^]	Q} ^cÁ]¦^••`¦^ÁFÍ€ÁĒÁGHGÁàæ¦	€ÈGÍÀàæ¦Á{æ¢Á~[¦ÁFÍÁ•^&[}å•Áæ~c^¦Á]~¦*ã}*Á ¦^*~ æc[¦	



EÁŒ||Á{æ¦\^åÁãc^{•Á{~•cÁà^Á¦^]|æ&^åÁ¸@^}Á•^¦çã&^åÈ ÀÁÜ^]|æ&^{^}cÁ⊤æã}ÁÒ|^&c¦[}ã&ÁW}ācÁSācÁŒÚ€GGÌ

F	ŒÚFIÌI	Ò}çã¦[}{^}cæ ÁÒ}åÁÔæ]	F€E	ŒÚÏÍG€	±UḍÜã}*
GE	ŒÚFIÌG	P^å¦[•œcã&ÁÖãæ]@¦æ* {	FF	ŒÚFIÏÍ	Ù]¦ã}*
Н	ŒÚÏÍF€	Ùcæcˇ•ÁÖ^&æ	FG	ŒÚÏÍ€Î	Š[&æcã[}ÁÚ ~*
ΙÀ	ŒÚ€FÍF	⊤æã}ÁÒ ^&c¦[}ã&ÁW}ãc	FH	ŒÚÏÍ€Í	Ô æ {]ã} *ÁÞˇc
ĺ	ŒÚÏÍFÌ	Óæcc^¦^ÁÔæ¦¦ã^¦	FIE	ŒÚÏÍ€F	Öãæ]@¦æ* { ÁÜã} *
ÎE	ŒÚÏÍ€I	ÔÜG€GÍÁÓæcc^¦^	FÍÀ	ŒÚÏÍFH	Ú¦^••ˇ¦^ÁÙ^}•[¦
Ϊ	ŒÚÏÍ€Ì	Ù]¦ã}*ÁŒåbˇ•c^¦	FÎE	ŒÚÏÍ€G	±UqlÜã}*
Ì	ŒÚÍÏGÍ	Š[*[ÁÜã}*	FΪ	ŒÚÏÍFG	Ùcæcˇ•ÁXæ ç^ÁŠã~c^¦
J	ŒÚÏÍ€ÏĐÙ	Öãæ]@¦æ* { ÁÔ æ {]	FÌ	ŒÚÍF€F	Xæ ç^ÁÓ[å^



EÁŒ||Á{æ¦\^åÁāc^{•Á{~•cÁà^Á¦^]|æ&^åÁ¸@^}Á•^¦çã&^åÈ ÀÁÜ^]|æ&^{^}cÁ⊤æã}ÁÒ|^&c¦[}ã&ÁW}ācÁSācÁŒÚ€GGÌ

F	ŒÚFIÌIĐÙ	Ò}çã¦[}{^}cæ ÁÒ}åÁÔæ]	F€E	ŒÚÏÍG€	±UḍÜã}*
GE	ŒÚFIÌG	P^å¦[•cæcã&ÁÖãæ]@¦æ* {	FF	ŒÚFIÏÍ	Ù]¦ã}*
Н	ŒÚÏÍF€	Ùœc ઁ•ÁÖ^&æ	FG	ŒÚÏÍ€Î	Š[&æcã[}ÁÚ ˇ*
ΙÀ	ŒÚ€FÍF	⊤æã}ÁÒ ^&c¦[}ã&ÁW}ãc	FH	ŒÚÏÍ€Í	Ô æ {]ã} *ÁÞ~c
ĺ	ŒÚÏÍFÌ	Óæcc^¦^ÁÔæ¦¦ã^¦	FIE	ŒÚÏÍ€F	Öãæ]@¦æ* {ÁÜã}*
ÎE	ŒÚÏÍ€I	ÔÜG€GÍÁÓæcc^¦^	FÍÀ	ŒÚÏÍFH	Ú¦^••ˇ¦^ÁÙ^}•[¦
Ϊ	ŒÚÏÍ€Ì	Ù]¦ã}*ÁŒåbˇ•c^¦	FÎΕ	ŒÚÏÍ€G	±UqʻÜã}*
Ì	ŒÚÍÏGÍ	Š[*[ÁÜã}*	FΪ	ŒÚÏÍFG	Ùcæcˇ•ÁXæ ç^ÁŠã~c^¦
J	ŒÚÏÍ€ÏĐÙ	Öãæ]@¦æ* { ÁÔ æ {]	FÌ	ŒÚÍF€G	Xæ ç^ÁÓ[å^



EÁŒ||Á{æ¦\^åÁāc^{•Á{~•cÁà^Á¦^]|æ&^åÁ¸@^}Á•^¦çã&^åÈ ÀÁÜ^]|æ&^{^}cÁ⊤æã}ÁÒ|^&c¦[}ã&ÁW}ācÁSācÁŒÚ€GGÌ

F	ŒÚFIÌI	Ò}çã¦[}{^}æ ÁÒ}åÁÔæ]	F€E	ŒÚÏÍG€	±UqlÜã} *
GE	ŒÚFIÌG	P^å¦[•œcã&ÁÖãæ]@¦æ* {	FF	ŒÚFIÏÍ	Ù]¦ã}*
Н	ŒÚÏÍF€	Ùcæcˇ•ÁÖ^&æ	FG	ŒÚÏÍ€Î	Š[&æcã[}ÁÚ `*
ΙÀ	ŒÚ€FÍF	⊤æã}ÁÒ ^&c¦[}ã&ÁW}ãc	FH	ŒÚÏÍ€Í	Ô æ {]ã} *ÁÞˇc
ĺ	ŒÚÏÍFÌ	Óæcc^¦^ÁÔæ¦¦ã^¦	FIE	ŒÚÏÍ€F	Öãæ]@¦æ* { ÁÜã} *
ÎE	ŒÚÏÍ€I	ÔÜG€GÍÁÓæcc^¦^	FÍÀ	ŒÚÏÍFH	Ú¦^••ˇ
Ϊ	ŒÚÏÍ€Ì	Ù]¦ã}*ÁŒåbˇ•c^¦	FÎΕ	ŒÚÏÍ€G	±UqlÜã} *
Ì	ŒÚÍÏGÍ	Š[*[ÁÜã}*	FΪ	ŒÚÏÍFG	Ùcæcˇ•ÁXæ ç^ÁŠã~c^¦
J	ŒÚÏÍ€ÏĐÙ	Öãæ]@¦æ* { ÁÔ æ {]	FÌ	ŒÚFIÌ€	Xæ ç^ÁÓ[å^



EÁŒ||Á{æ¦\^åÁãc^{•Á{~•cÁà^Á¦^]|æ&^åÁ¸@^}Á•^¦çã&^åÈ ÀÁÜ^]|æ&^{^}cÁ⊤æã}ÁÒ|^&c¦[}ã&ÁW}ācÁSācÁŒÚ€GGÌ

F	ŒÚFIÌI	Ò}çã¦[}{^}cæ ÁÒ}åÁÔæ]	F€E	ŒÚÏÍG€	±UqlÜã}*
GE	ŒÚFIÌG	P^å¦[•cæcã&ÁÖãæ]@¦æ* {	FF	ŒÚFIÏÍ	Ù]¦ã}*
Н	ŒÚÏÍF€	Ùcæcˇ•ÁÖ^&æ	FG	ŒÚÏÍ€Î	Š[&æcã[}ÁÚ `*
ΙÀ	ŒÚ€FÍF	⊤æã}ÁÒ ^&c¦[}ã&ÁW}ãc	FH	ŒÚÏÍ€Í	Ô æ {]ã} *ÁÞˇc
ĺ	ŒÚÏÍFÌ	Óæcc^¦^ÁÔæ¦¦ã^¦	FIE	ŒÚÏÍ€F	Öãæ]@¦æ* {ÁÜã}*
ÎΕ	ŒÚÏÍ€I	ÔÜG€GÍÁÓæcc^¦^	FÍÀ	ŒÚÏÍFH	Ú¦^••ˇ¦^ÁÙ^}•[¦
Ϊ	ŒÚÏÍ€Ì	Ù]¦ã}*ÁŒåbˇ•c^¦	FÎE	ŒÚÏÍ€G	±UqʻÜã}*
Ì	ŒÚÍÏGÍ	Š[*[ÁÜã}*	FΪ	ŒÚÏÍFG	Ùcæcˇ•ÁXæ ç^ÁŠã~c^¦
J	ŒÚÏÍ€ÏĐÙ	Öãæ]@læ* { ÁÔ æ {]	FÌ	ŒÚÍG€F	Xæ ç^ÁÓ[å^



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