

Sunbeam Tiger VIN Tag Research (draft final)

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May 5, 2018

Abstract:

The history of the Sunbeam Tiger was short and intense with major production lasting almost exactly three years from June 1964 to June 1967. Rootes went from a prototype in March of 1963 to a public introduction at the New York Auto Show in April of 1964 to production in June 1964 with the assistance of Ford, Jensen Motors, Pressed Steel, Lucas, Jaeger, Salisbury, Hardy-Spicer, Girling, Dunlop, AC and others. The result of the rapid development and production was that numerous modifications were made to the car throughout its short life and whenever they became available (see Carroll 1978:76-83). The Vehicle Identification Number (VIN) tags tag is no exception.

A 400+ sample of Sunbeam Tiger VIN tags included examples from the three largest production Tiger varieties, i.e. B947XXXX, B38200XXXX and B382100XXX, referred to herein as MkI, MkIIa and MkII, respectively. Those VIN tags were examined and analyzed for variability including: the font types used, the location of these fonts, spacing and alignment.

Analysis of the VIN tag sample indicates that two font sets were used to stamp/punch the VIN tag information during various stages of production. The use, arrangement and placement of these fonts changes over the production history indicating refinement of the VIN tag number stamping process. Analysis of these variables and their changing relationships over time resulted in the sample being divided into seven temporally sensitive Styles and two Variants. This article presents the temporal distribution of these Styles and Variants and is followed by a scenario regarding how the Tiger VIN tag system may have operated.

Variables and Analysis

A "standard" VIN tag for a Tiger contains five pieces of data related to the car's construction history (Figure 1):

- The Vehicle Identification Number (VIN),
- Build Series (e.g. LRXFE, HROFE),
- Engine Number (sequential beginning with 1000),
- Engine Series (coded for month, day and year of the Ford engine order, e.g. G13KA) and
- Color Code (Rootes code for one of 12 standard colors used during Tiger production).

Examples of early VIN tag types and those applied to exotic examples such as completely knocked down (CKD) exports to South Africa are discussed in the Book of Norman, Volume I (BON 1993). Note that VIN number references are followed by construction dates and graphically summarized (Figure 2).

Figure 1: Five Pieces of Data on Each VIN tag

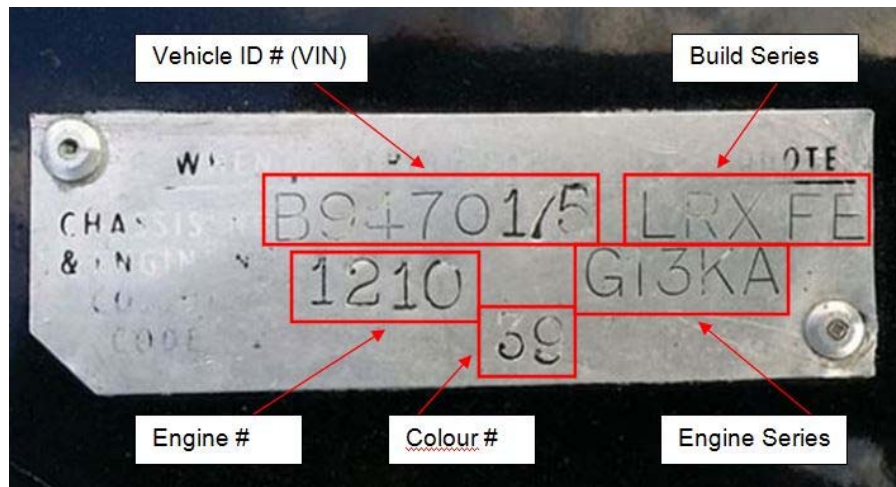
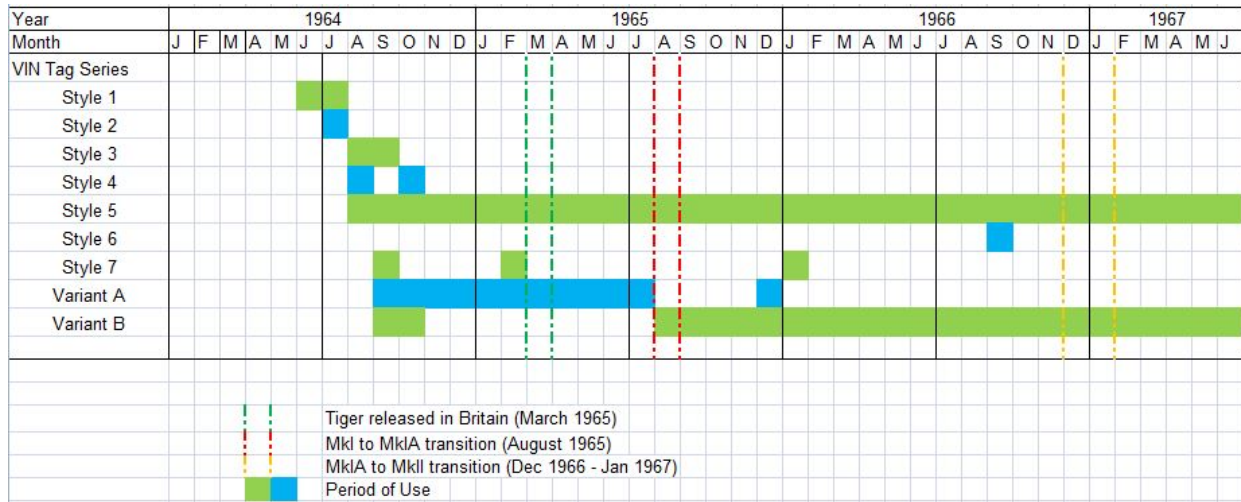


Figure 2: Chronological Distribution of VIN Tag Styles



Previous examination of a small sample had indicated that the majority of VIN tags used two distinctive fonts on each tag: **serif** (Times Roman is an example) and **sans serif** (Arial is an example). **Yellow** and **Green** highlights throughout the document highlight **serif** and **sans serif** fonts as visual aid in distinguishing font distributions and assigned VIN styles. In brief, **serif** fonts contain small lines, points and flourishes to finish off the main character, whereas **sans serif** lacks the additional elements.

For example, the “B” in the **serif** font has horizontal extensions at both the top and the bottom. Similar **serif** extensions are present in the early Build Series and Engine Series alpha-numeric characters. Likewise, the **serif** numeric characters have extensions on the 2, 3, 5 and 7. Other variations include: the character for zero (0) being larger in the **serif** font; the 1 and 4 having “feet”, small horizontal lines at the base; the beginning of the 2 and 6 and the ends of the 3, 5 and 9 having a period as a finish; and the 7 having a broadened leg and small downward extension from the top end of the digit. These variations are present throughout the examples and have resulted in the assignment of VIN tags to one of seven Styles and two Variants as

presented below. Styles were assigned chronologically with the earliest occurring style being designated Style 1.

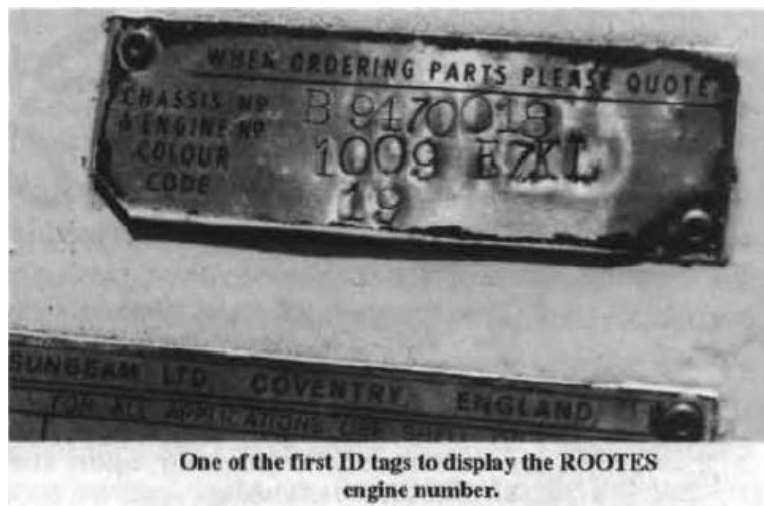
Style 1

The earliest tag style (Style 1) used **serif** font throughout as seen of the VIN tag of B9470018 (Figure 3) and continuing at least through B94700099 within the sample (Figure 4). Minor deviations in alignment, spacing and orientation indicate each number was stamped individually onto the VIN tag. B9470018 and B94700099 have construction dates of June 11, 1964 and July 10, 1964, respectively.

Style 1 VIN tag variety is illustrated below using **Times Roman** (**serif**) fonts:

B9470018
1009 E7KL
19

Figure 3: Style 1: All **serif** font (lowest VIN in sample) (Note the lack of Build Series data) (BON 1993:23)



B9470099 LRX FE
1104 G13KA
53

Figure 4: Style 1: All **serif** font (highest Style 1 VIN tag in the sample) (Note gap in Build Series data; see Variant A, discussed below)



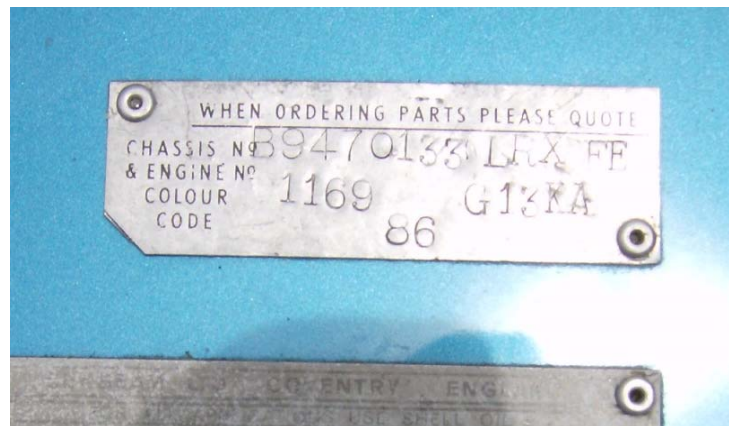
Style 2

The move towards what are assumed to be multi-character stamps is first seen within the sample in B9470133 LRXFE. In this style (Style 2) the alpha character “B” and first four numeric characters of the VIN are in **sans serif** font (Figure 5). The alignment, spacing, orientation and depth of the imprint are even indicating a single stroke or punch produced the characters. The final three digits of the VIN are in **serif** font, as are the Build Series, Engine Number, Engine Series and Color Code. Minor deviations in alignment, spacing and orientation of the **serif** characters indicate they were stamped individually onto the VIN tag. B9470133 has a construction date of July 31, 1964, roughly six weeks into production.

This VIN tag variety is illustrated below using **Arial** (**sans serif**) and **Times Roman** (**serif**) fonts:

B9470133 LRX FE
1169 G13KA
86

Figure 5: Style 2: Alpha and first four numeric characters of the VIN are in **sans serif** font. (Gap in Build Series data; see Variant A, below)



Style 3

VIN tag variety changed rapidly as the next sample VIN tag, e.g. B9470175 (Style 3), uses **san serif** font, applied to all but the final three VIN digits (as in Style 2) plus the Build Series and the Engine Series (Figure 6). The alignment, spacing, orientation and depth of the imprints are even indicating a single stroke or punch produced each series of characters. B9470175 has a construction date of Aug. 14, 1964, only two weeks after production of B9470133 (Style 2). The use of Style 3 VIN tag continues (with one exception in the sample: B9470240) until B9470252 (Aug. 14, 1964), and again is used sporadically in B9470338 (Sept. 14, 1964) in the sample.

B9470175 LRX FE
1210 G13KA
39

Figure 6: Style 3: Alpha and first four numeric characters of VIN, Build Series and Engine Series in **sans serif** font. (Gap in Build Series data; see Variant A, below)



Style 4

VIN B9470279 through B9470328 sees further alterations in the VIN tag variety (Style 4) by having all but the final two digits of the VIN in **sans serif**, as are the Build Series and Engine Series (Figure 7). Use of Style 4 was interspersed for a period with Style 5 (see below). B9470279 and B9470328 have unknown construction dates in Aug. 1964.

This VIN tag variety is illustrated below using **Arial** (**sans serif**) and **Times Roman** (**serif**) fonts:

B9470279 LRXFE
1316 G13KA
58

Figure 7: Style 4: Alpha and first five numeric characters of VIN, Build Series and Engine Series are in **sans serif** font. (Note: no gap in Build Series data; see Variant 2, below)



Style 5

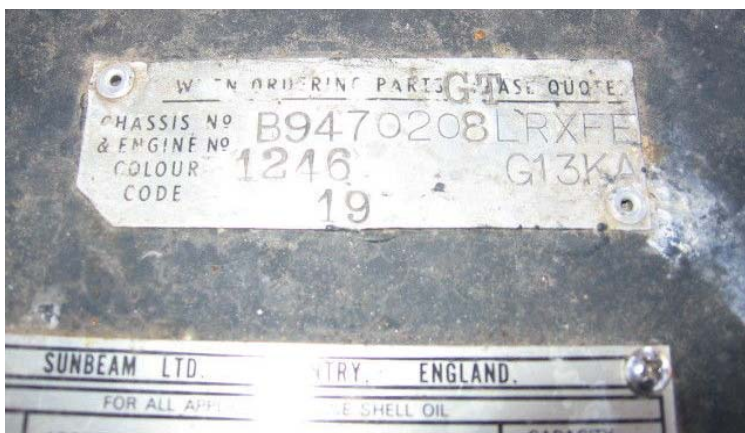
With B9470208 (a GT model with a construction date of Aug. 20, 1964), the most commonly used VIN tag variety (Style 5) is adopted (Figure 8), but not used consistently until B9470484 (Sept. 1964) and even then with exceptions (e.g. B9470996 [Style 4; Oct. 15, 1964]). Style 5 uses **sans serif** font for all but the final digit of the VIN, as well as the Build Series and the Engine Series. It applies to LRXFE, LROFE and HROFE build series within the sample. This VIN tag variety would remain unchanged throughout production including most of the MkI series, and the entire MkIa and MkII series from B382000027 (the earliest MkIa in the sample

dated Aug. 12, 1965) through B382100620 (the final MkII VIN tag in the sample dated June 15, 1967; Figure 9).

This VIN tag variety is illustrated below using Arial (sans serif) and Times Roman (serif) fonts:

B9470208 LRXFE
1246 G13KA
19

Figure 8: Style 5: Alpha and first six numeric characters of VIN, Build Series and Engine Series in sans serif font (Note: GT stamped with serif font; no gap in Build Series data: Variant B)



B382100620 LRXFE
1985 A11KK
86

Figure 9: Style 5: Alpha and first six numeric characters of VIN, Build Series and Engine Series in sans serif font (last Style 5 VIN in the sample) (Note: no gap in Build Series data; see Variant B, below)



Style 6

An anomaly is found in B382002457 (with a construction date of Sept. 21, 1966) where all the VIN digits are in sans serif font, as well as the Build Series and Engine Series (Figure 10). Engine Number and Color Code remain in serif font. This VIN is the only example in the sample. The authenticity of the VIN tag will require verification. The use of the two fonts and slight offset

of the **serif** fonts supports the validity of the tag, whereas the difference in the **serif** font and the cut of the metal tag argue that the tag is a reproduction.

This VIN tag variety is illustrated below using **Arial** (**sans serif**) and **Times Roman** (**serif**) fonts:

B382002457 LRXFE
7070 **B19KC**
106

Figure 10: Anomalous Style 6: All alpha and numeric characters of VIN, Build Series and Engine Series in **sans serif** font (Note: only one Style 6 VIN in the sample) (Note: no gap in Build Series data; see Variant B, below)



Style 7

Another variant is seen in French VIN tags (B9470487LRO FE, Sept. 1964), on at least one example in the U.S. market (B9472347 LRX FE, Feb. 2, 1965) and a few examples of British home market VIN tags (B382001137HRO FE, Jan. 25, 1966) where there is a **sans serif** font with raised letters with only the numeral “1” showing a **serif** attribute in the form of a horizontal line or “foot” at the bottom of the character (Figure 11). Alignment of all alpha-numeric characters indicate a jig or machine punch. Internal variability in the illustrated raised letter tag sample includes the relative placement of the Color Code between the Engine Number and Engine Series on the French VIN tag and on the far left margin in the U.S. and British home market VIN tags. In addition, the home market VIN tag has a hyphen between the Engine Number and Engine Series. Further research will be necessary to substantiate that these varieties reflect factory production applications and/or specific market requirements.

Build Series Variations A & B

Another source of variability within the VIN tag concerns the two variations in spacing between the third (O or X) and fourth (Ford “F”) alpha characters in the Build Series. Variant A has a 0.5 font-width gap between the third and fourth characters (e.g. B9470175 LRX FE]; see Figure 6), whereas Variant B spacing is continuous and even (e.g. B9470208 LRXFE; see Figure 8). For the majority of the VIN sample, this relates to the shift from Mk1 to Mk1a Tiger varieties. Variant A is found on VIN tags from where the use of **sans serif** font for the Build Series first appears in the sample (B9470172 LRX FE; Aug. 14, 1964) through the end of the Mk1 series (B9473696 LRO FE; July 7, 1965) and again for a few instances in the Mk1a series that include B382001019 LRX FE (Dec. 10, 1965), B382001079 LRX FE (Dec. 14, 1965), and B382001084 LRX FE (Dec. 14, 1965) in the sample.

Variant B, the continuous font without the 0.5 font-width gap between the X and F, is seen in early MkI production from B9470208LRXFE (a GT model built August 20, 1964; see Figure 8) through B9470594LRXFE (Sept. 17, 1964) in the sample and again beginning with the MkIIa series (B382000021, Aug. 12, 1965) and continuing uninterrupted through the end of the MkII series (B382100620LRXFE; June 15, 1967) with the exceptions noted above. It would appear then that at least two multi-character Build Series punches existed and they were used interchangeably with both punch sets used in Styles 3, 4 and 5 VIN tags.

Figure 11: Style 7: Raised letter examples of VIN tags (top French, middle USA, bottom British; Rootes1.com 2016).



Additional VIN tag variability is noted in very early VIN tags that have either no Build Series data or lack the full suffix with only /FE following the VIN (see Figure 3; Figure 12).

Figure 12: Style 1: With partial Build Series suffix



Analysis

The identification of two fonts, the occurrence and alignment on the VIN tags provides insight into the periodic variability exhibited during the Sunbeam Tiger production, especially at it applies to early units. From the patterning of the two fonts (**serif** and **sans serif**), it is inferred that the VIN tags were prepared during at least two and possibly as many as five separate events designed to help facilitate number assignments where a large inventory of parts were involved.

Engines came into the assembly line in groups ranging from eight to over 2,000 units (Graham Vickery, personal communication), whereas little is known to have been recorded regarding quantities and timing of body shipments (each identified by one of five JAL series and sequential number tag attached by Pressed Steel Co. Ltd. and ROTA numbers assigned). Gearboxes are logged in a continuous number series, whereas rear axles have an alpha-numeric calendrical coding, e.g. H64, before the sequential number (A through M [skipping I] for Jan. through Dec).

Analysis of the sample indicates that the earliest VIN number tags were produced using a individual character **serif** font set with letters and numbers being individually stamped as indicated by slight misalignments of the alpha/numeric characters as seen in Style 1 (see Figure 4).

The uniform alignment of the VIN characters indicates multiple characters were loaded into a jig or otherwise mechanically stamped in a single action. This is supported by the VIN tag for B32100513 (Figure 13) where the VIN is stamped twice with the two stamps slightly offset such that all but the final digit are double stamped in **sans serif** while retaining the relative position of the characters to one another (the final VIN digit is in **serif** font without a double stamp). That the Build Series was stamped in a separate action from that of the VIN is supported by the lack of the offset of the Build Series characters on the B32100513 tag. Evidence of a separate action for stamping of the VIN and the Build Series is also seen in the relative variation in alignment of the two data sets.

Uniformity in the Build Series alignment, spacing and orientation using **sans serif** does support that the Build Series characters were stamped in a single stroke. This would require a small set of preformed Build Series stamps to cover the bulk of the Build Series variety, e.g. LRXFE, HROFE. These data would have been assigned according the market to be supplied. The bulk of the production had the LRXFE configuration. It is noted that bodies received from Pressed Steel, with the exception of the few GTs, were configured for multiple Build Series through installation of specific components on the production line. Determining when these data were stamped onto the VIN is problematic. It may have been as early as during the initial VIN prefix stamping or immediately after to provide production line guidance as to the required configuration.

Color Code characters were **serif** with minor deviations in alignment, spacing and orientation indicating each number was stamped individually onto the VIN tag. The data necessary to complete this section of the tag would be available during production after the prefix stamped VIN tag (and possibly Build Series) had been assigned to a specific car.

The Engine Numbers assigned are, for the most part in line with others in the sequence and produces almost exclusive groupings by Engine Series. That there are exceptions where Engine Number assignments are outside a given Engine Series argues that Engine Numbers were assigned after they arrived from Ford, but prior to installation. Valve Cover Number Plates

were likely stamped and attached prior to shipping from Ford (Graham Vickery, personal communication). It should be noted that Valve Cover Tags were produced by Ford exclusively with **sans serif** fonts, possibly with a rotating number jig. That most, but not all Engine Numbers correlate with a given Engine Series would indicate that engines were stockpiled in groups prior to shipping with a few stragglers or later arrivals from another Engine Series being included during Engine Number assignment out of sequence with others in the series. The Engine Number on the VIN is stamped with **serif** characters with variations in alignment indicating they were individually stamped. Engine Series is likely added at this stage to the VIN using **sans serif** multi-character stamps matched with valve cover tags.

The Engine Series data was not stamped as part of single stamping action that included the VIN prefix stamping as indicated by the shifting horizontal and vertical relationships of the two lines. Indications are, however, that the Engine Series (Styles 3 through 6) was also stamped in a single action requiring a new multi-character **sans serif** stamp for each new Engine Series, e.g. A27KA, separate from the VIN and Build Series.

Figure 13: Style 5: Double misaligned stamp supporting a single punch scenario.



Conclusions

Data stamped on the Tiger VIN tags consisted of five pieces of data.

- The Vehicle Identification Number (VIN),
- Build Series (e.g. LRXFE, HROFE),
- Engine Number (sequential beginning with 1000),
- Engine Series (coded for month, day and year of the Ford engine order, e.g. G13KA) and
- Color Code (Rootes code for one of 12 standard colors used during Tiger production).

Inspection and analysis of a sample of VIN tags indicates a rapid evolution in automating and expediting stamping of pertinent data. The earliest tags use individual **serif** font punches (Style 1) and progressed quickly to using multi-character **sans serif** font punches applied to the VIN prefix, Build Series and Engine Series. Styles 2 applied the multi-character punch to the “B” designation and the first four digits of the VIN. The remainder of the data continued to be punched with individual alpha/numeric character in the **serif** font. Style 3 built on this by

including multi-character punches for both Build Series and Engine Series. Style 4 continues this layout with the addition of another VIN digit in the **sans serif** font, so that only the final two numbers were left for individual punches in **serif** font. Style 5 represents the bulk of the VIN tags produced with all but the final number of the VIN in **sans serif** font, which continued to be made with an individual **serif** font punch. Additional styles include an anomalous (Style 6) all **sans serif** font tag of questionable heritage and raised letter VIN tags (Style 7) applied to a select few French, USA and British home market cars.

Two variants were noted reflecting spacing within the Build Series between the third and fourth letters. The spacing was noted sporadically until December 1965, whereas the lack of spacing was first noted in the GT series in August 1964 and again in the ST model in September 1964, becoming the exclusive variant in August 1965 and continuing to the end of production in June 1967.

The latest date of occurrence of Style 1 in the sample (B94700099) has a construction date of July 10, 1964 (limited production started around June 3, 1964). It is unclear from the data whether the entire contents of the Style 1 VIN tag was stamped during a single or multiple events. From the introduction of multi-character stamps **sans serif** font sets in addition to single character **serif** fonts it is inferred that at least two events occurred.

Data support several scenarios for the systematic stamping of VIN tag data in which at least two and possibly as many as five separate events were necessary for the completion VIN prefix. A proposed scenario is that three events took place. The first event, in which the primary digits of the VIN (e.g. B947#, Styles 2 & 3; B947## Style 4 and B947####, Style 5; see Figures 5 through 8) has been assigned using a **sans serif** font, may have taken place in bulk, prior to matching with a specific car or engine. As noted above, Build Series data may have been assigned at this time or shortly after in order to guide production.

The second event would include data gathered on the production line when the VIN tag is associated with a specific car as determined by the JAL tag. At this time, color data and final VIN number(s) could be added to the VIN. The final data entry would be where a specific engine was assigned and would have included the multi-character **sans serif** font Engine Series, as well as the individually punched **serif** font Engine Number. It may be that the second and third steps took place at the end of the production line upon final inspection.

Additional data are being collected and edits/revisions are likely as the sample size increases and new historical data comes to light. Comments with regards to observations, analyses and/or conclusions are welcome.