THE PILOT

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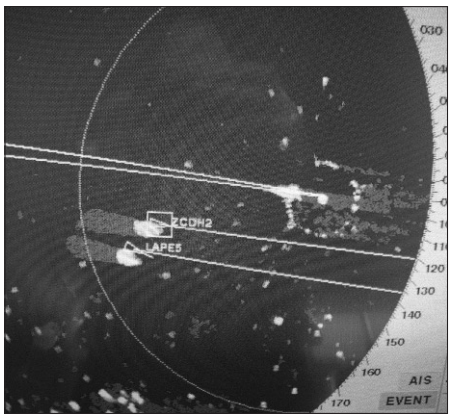
The official organ of the United Kingdom Maritime Pilots' Association

# Automatic Identification System (AIS) TRANSPONDER UPDATE




*"Virtual" ...*

*It is now just over one year since AIS became mandatory for all SOLAS vessels over 300 grt and although I must admit that my prediction that the system would have difficulty in coping with the amount of traffic in port areas has been largely proven wrong there are increasing cases of ships' units failing in a variety of functions. These failures are about to gain in significance as a result of the implementation of Class B AIS for non SOLAS vessels and, from 1st July 2008, the requirement for new radars to have AIS integration. It is therefore timely to identify some of the problems that are occurring with the existing systems.*

*... "Reality"*

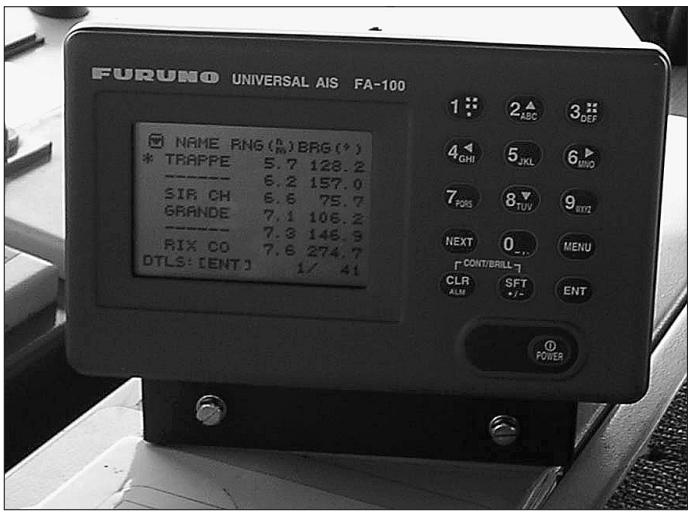
## Editorial

The good news this quarter is that the UKMPA is at last going to be represented within the group Port Skills and Safety Limited (PSSL). PSSL took over from the DfT funded British Ports Industry Training (BPIT) in 2002 and whereas the UKMPA had worked closely with BPIT to produce a comprehensive document detailing National Occupational Standards for Maritime pilots we were not invited to join the port led commercial body of PSSL. It has therefore taken four years of hard work by both Norman McKinney and Les Cate along with members of the Section Committee to finally achieve an invitation to participate on the group's activities relevant to pilots. The reason that this is important is that PSSL, in conjunction with some nautical colleges, have produced a draft Foundation Degree for ports which will include pilotage and it is therefore essential that pilots are represented. The UKMPA has only one agenda within PSSL and that is safety and we will therefore be using our membership to convince those who may wish to reduce standards that it is in the interests of the whole ports sector that high standards of training and qualifications for pilots are maintained in the interests of ensuring the safety of ships, port infrastructure and reputations!

*John Clandillon-Baker*

I am aware of three cases where total failure has resulted in vessels having to either send their units away for repair or having to install a replacement set. This has meant that until the AIS was repaired or replaced the vessels concerned were navigating without AIS and were thus invisible to AIS tracking systems. With respect to other failures the most common on-board malfunction is the misalignment between the gyro heading and the AIS heading which results in the AIS heading either defaulting to North or the AIS heading being incorrectly aligned. In the latter case this sometimes results from the unit being switched off in port and if the heading is different when the unit is switched on again it does not automatically align with the correct heading but defaults to north or retains the original shut down heading. Unfortunately, such faults are not readily apparent to those on board and are usually only identified by reports from other vessels or a VTS centre. Fixing this alignment problem is also not straightforward on many vessels and I have recently piloted a vessel where it was necessary to contact a service technician to resolve this error. As experience is gained then these faults should normally be eliminated by including the AIS gyro heading alignment on the pre sailing check list, but there is now a new problem with this in that since the only training that most officers have received is from the installation engineer, when new crews join who are unfamiliar with a particular AIS unit they may have no idea how to undertake some operational procedures. This may seem an unlikely scenario, but I was on one vessel recently which was reported as having misaligned heading data and the gyro alignment interface was a via a small separate unit with an adjustment dial tucked away underneath the wheelhouse console. Fortunately the Mate had witnessed the installation, but this is not the sort of detail that would normally

## In This Issue




*Picture 1. Two of our ships are missing!*

be passed on during the usual few hours of a crew change! All this of course does raise the point that surely in the 21st century, technology should be able to eliminate such tedious and fiddly operations!

Another problem which I have observed on some ships' AIS is the phenomena whereby AIS data either disappears ***(picture 1)*** or the data defaults to the basic MMSI number. Because these effects are not universal (other vessels and VTS are tracking the "missing" target without problems) I have been advised that such target corruption is most likely to be caused by poorly installed equipment. However, and this is a problem that may become serious with the introduction of the Class B AIS, such target loss could also be caused by what is termed as "garbling" of the signal. It is therefore of relevance to be aware as to how garbling may arise and the following explanation is from a paper presented to the Royal Institute of Navigation NAV05 Conference by Dr Andy Norris who chairs the Technical Committee of the International Electrotechnical Committee (IEC) that is responsible for issuing technical standards for ships' radio and navigation equipment:

*AIS works on Time Division Multiple Access (TDMA) transmissions. The basis of TDMA is that time is divided up into discrete 'slots' and only one station (base-station, ship-station, etc) will be transmitting during a particular time slot. For AIS there are 2,250 slots in every minute on each of the two AIS VHF channels, which are known as AIS 1 and AIS 2. UTC is used as the time reference. When an AIS Class A station is first switched on it pre-determines its transmission slots by 'listening' to the existing traffic. This establishes which slots are free, helped by stations already 'on-air', which broadcast their future slot selection as part of their transmitted messages. The fact that each station determines its own slots within an organised regime gives this technique the name 'Self Organising TDMA' (SOTDMA). In busy areas unused slots become rare and then stations select slots already in use by the most distant stations. These are readily calculated because of the positional data contained within the AIS messages. The organised reuse of slots from distant stations should make AIS degrade "gracefully" as the number of stations in an area increases by making the effective range of AIS decrease to match the increase in station density. The characteristics of the frequency modulated (FM) signal used by AIS helps in ensuring that the strong signals from close stations are properly demodulated in the presence of weaker signals from more distant stations sharing the same slot. This is known as co-channel interference rejection. However, if confronted with signals of similar strength the demodulator becomes confused and 'garbling" occurs. In fact there are a number of mechanisms that can make signals from distant stations similar in strength or even stronger than some closer stations. For instance, poorly situated AIS antennas can cause 'masking' in some directions and enhanced sensitivity in other directions. Also, anomalous propagation of VHF signals during particular climatic conditions can provide a focusing effect, giving even very distant stations unusual prominence. For these reasons the inbuilt features of SOTDMA do not always ensure that closer stations are received in preference to more distant stations.*

## Practical Useage

With respect to the type of equipment installed, the overwhelming majority of vessels are fitted with the minimum required to comply with carriage regulations! These are small alpha numeric displays which at the absolute basic level have to display at least three targets. I have seen such minimal three line units on ships and for all practical purposes they are totally useless. Other systems cram a list of many targets into the small display (typically 9cm x 12cm) which renders them illegible and again these are totally useless. The more sophisticated units, such as those manufactured by SAAB and SAILOR, are fortunately the ones most commonly fitted but due to the small screen size these also have severe practical limitations in areas where several ships are present, which of course is when it is likely to be of most benefit! These intermediate sets offer a choice of display modes, with either a list of targets being displayed or a by a graphic display similar to a mini radar picture. On the graphic display ***(picture 2)***, selecting a target for display is so fiddly that again it is impractical and in my experience around 90% of vessels have the display set to the list mode.


*Picture 2. Selecting targets on the graphic display is fiddly*


*Picture 3. The target list by range is the normal mode of use*

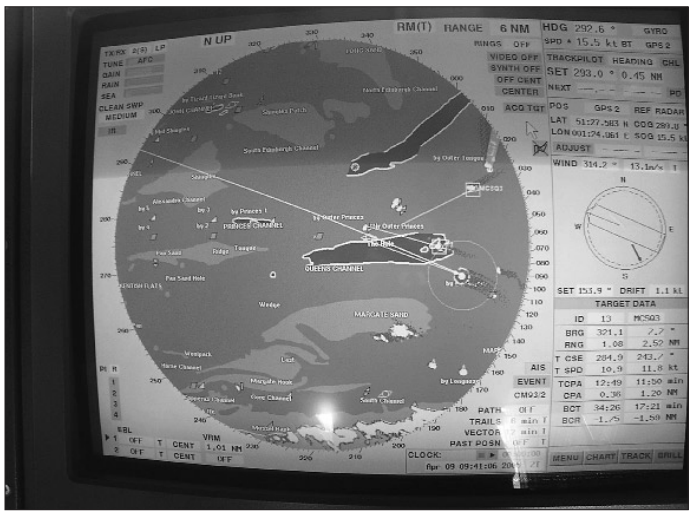
Again there are several options for listing but the most useful is the target list selected by range ***(picture 3)*** which displays the MMSI number, the name of the vessel and its range and bearing. By scrolling down the list a target can be selected and extended data on the selected vessel can be obtained ***(picture 4)***. The obvious place for sighting such displays is adjacent to the radar where the bearing and rage of a radar target can be correlated with the AIS display and a good example is shown in ***picture 5***. However, on many vessels the AIS is sited wherever there happened to be some space when the set was delivered and this is usually remote from the radar and quite frequently in a corner at the back of the chart table! I have yet to come across any free standing AIS unit that has an integrated anti collision warning fitted should another AIS target enter a pre determined danger zone around the own vessel, although such alarms are usually present where AIS is integrated into the radar display.

## Integrated AIS on radar

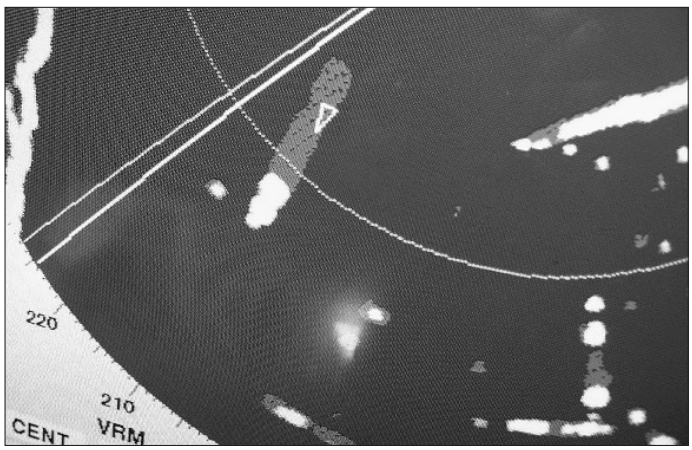
The integration of AIS onto the radar display is being received with mixed enthusiasm by those on board using such systems and much depends on the quality of the equipment and its installation. ***Picture 6*** shows a high quality display which provided very accurate tracking with good correlation between the radar and AIS vectoring although even this equipment revealed some offset


*Picture 4. Extended data*

*Picture 5. ENC, Radar and IAS*
*(plus essential coffe mug - pink fluffy dice optional!)*




*Picture 6. Radar with AIS and chart overlay*




*Picture 7. Radar and AIS target offset. Approx. 2 cables!*

between the radar and AIS targets ***(picture 7)*** and on other sets I have observed offsets of up to 5 cables and this is one aspect of integration which may cause a watch keeper to make an erroneous interpretation of a developing situation. Another particularly annoying "feature" of some AIS / radar integration displays is that although the AIS function can be switched off, many such displays that I have come across have had an automatic AIS proximity alarm which triggers if another AIS vessel enters the radar's anti collision guard zone. One unforeseen result of this supposed safety feature is that even when approaching a vessel at anchor or moored alongside, the AIS "collision" alarm resounds around the wheelhouse! The solution? The guard zone is set to zero and the alarms are set to "mute" thus neatly disabling one of the primary anti collision functions of the radar!!

One other fact is that I have yet to come across any Master or Officer of the Watch (OOW) who has been on an AIS course or received any formal instructions in its use. All knowledge on board has therefore either been gained from a brief introduction from the installation engineer or from the user manual. I believe (although I hope that I am proven wrong again!) that this lack of formal training is going to be a significant factor in vessel safety as Class B units and AIS radar integration displays are introduced. These two developments are designed to provide *"additional information to the OOW to enhance the situational awareness of a developing situation with respect to collision avoidance"*. This all sounds admirable but the limitations which have been placed on Class B AIS mean that both SOLAS and non SOLAS vessels may receive incomplete and inaccurate data! The reason for this is in the technical specifications of the Class B equipment and again the following is an edited extract from an article on AIS B implementation written by Dr Norris for the "Digital Ship" on-line magazine.

***AIS B*** *offers leisure and other small vessel users a potentially valuable tool to enhance maritime safety at an affordable price. It has been designed to minimise degradation of the AIS network and will be available in three options.*

- *The basic unit is a display-less transmitter for up-mast mounting to alert the vessel's presence on SOLAS vessels' AIS in the same manner as a radar reflector does now on radar.*
- *Intermediate units have an inbuilt display (similar to the Class A displays) which, as well as broadcasting own-ship position, will enable users to see the positions and vessel data of all AIS-fitted vessels in their vicinity on the display.*
- *At the top end of the market AIS overlay capability will be added to radars and electronic chart systems, giving sophisticated navigational information to the user, vying with the facilities available on the most comprehensively fitted SOLAS vessel.*

*With this prospect of eventual high usage in the leisure sector it is worthwhile taking a look at some of the possible issues that may arise with this increased use of AIS.*

*The Class B transponder transmits at a lower power (2 watts) than Class A (12.5 watts) thus reducing the effective range of Class B transmissions and their effect on the network. Also, position reports are given at a maximum rate of once every 30 seconds, as opposed to Class A systems, which typically transmit once every 10 seconds and up to every 2 seconds. Importantly, Class B systems will give priority to Class A transmissions, delaying their own transmissions if a Class A station is already transmitting. This is the fundamental aspect of the Carrier Sense (CS) mode of operation that is used by Class B. Tests have confirmed that the AIS network is minimally affected even if there are relatively large numbers of Class B vessels in any area.*

## *Collision avoidance*

*AIS is considered to be a useful aid to improve situational awareness but its use as an anti-collision device is not recognised by the IMO.*

*The Collision Regulations (COLREGS) are written around the concepts of visibility (sight) of vessels and the proper use of radar and have not yet been revised to incorporate any reference to AIS. However, Rule 5 of the COLREGS (Lookout) does emphasise the use of 'all available means' to make a full appraisal of the situation and of the risk of collision. It therefore appears that this rule requires vessels that have AIS fitted to use the system as part of such an appraisal, but not to take collision avoidance decisions based solely on AIS data. What is fundamental is that AIS data should only be used with the full knowledge that data errors are possible and that not all targets may be transmitting data - an AIS system may not be fitted or a fault may have developed.*

## *AIS displays*

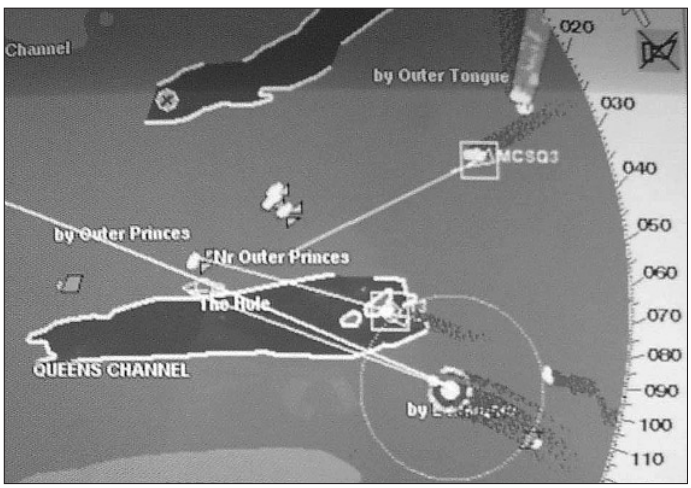
*It is of extreme importance to the Class B user to be aware that there is no statutory requirement for SOLAS vessels to be able to display AIS targets on a screen merely a requirement to provide a simple alphanumeric Minimum Keyboard and Display (MKD). To meet the minimum requirements this display need show no more than three ships at any one time detailing bearing, range and name of ship. Therefore Class B users must understand that their vessel may not be appearing as a 'bright beacon' on the displays of the majority of SOLAS vessels. Although IMO requires all new radars fitted after 1 July 2008 to have good AIS display capabilities, existing radars will not have to be upgraded and so it will be many years before AIS data can be effectively used for navigation on many SOLAS vessels.*

*Unfortunately, an uninformed Class B user with a reasonable AIS display may base their own collision avoidance decisions solely on AIS data thus creating significant problems for SOLAS vessels.*

## *Information overload?*

*The confusing excess of data when navigating in waters crowded with Class B users will render AIS useless for most Class A users fitted with the MKD. On a radar screen an excessive number of AIS symbols will make the observation of raw radar data more difficult and so the display of AIS targets may need to be inhibited or an AIS target filter enabled. From July 2008 all new navigation displays capable of showing AIS targets will need to meet IMO performance standards which require that AIS filters must be included 'in order to ensure that the clarity of the total presentation is not substantially impaired'. Increasingly sophisticated AIS filters may have to be developed but unfortunately it is difficult to make filters sufficiently adaptable to be effective whilst not obscuring possibly dangerous targets.*

This article has highlighted some very relevant points and both the AIS B and radar AIS integration have the potential to create a dangerously confusing picture to the hapless navigator, especially in reduced visibility. I have previously identified a major problem with AIS integration on radar and the addition of Class B AIS into the already crowded display has the potential to create a nightmare scenario. In view of the fact that data update transmissions AIS B vessels are going to be at least 30 seconds apart and in busy areas may not update at all means that the information will be historic and therefore totally unreliable and this, coupled with an automatic collision alarm function has the potential to create so much information overload as to render the display unusable ***(picture 8)***. Dr Norris' article refers to filtering but correctly identifies the problem of actual dangerous targets then being missed. Couple this with the fact that leisure users are going to assume that they are being accurately plotted and carefully tracked by the professional navigators of the "bridge team" I don't believe that the word nightmare is at all inappropriate! As if these factors are not sufficiently worrying there is a also move by IALA, buoyed by an enthusiasm for e-navigation by the shipping Minister and DfT, to introduced AIS based "virtual" navigation marks to replace the traditional physical marks! Considering that the original full implementation date for AIS by IMO was December 2008, which was accelerated by four years following pressure from the USA's security agenda, I personally feel that the AIS has been implemented without a proper assessment of the practical useage through structured operator feedback and to now release the system into the leisure




*A developing situation.*
*Will the inclusion of Class B AIS result in information overload?*

market is sheer folly, not least because it is sure to tempt some leisure sailors to proceed in restricted visibility when they would normally remain in the marina. Just in case you may have any lingering doubts that I am exaggerating, there is already a British company called NASA Marine manufacturing an AIS receiver (note no transmitter included!) unit for the leisure market called "AIS radar"! The product description is as follows:

*The Nasa Marine AIS radar is the first stand alone AIS receiver / plotter specifically designed for the leisure boat market. The display, with ranges of 1, 2, 4, 8,16 and 32 nautical miles shows AIS carrying vessels in a format normally associated with conventional radar. A trail of previous positions clearly chows the relative track of all the targets on the screen. A box to the right of the screen displays the speed over the ground, the vessel name, mmsi number and the latidude (sic) and longitude of any target selected by the user.*

## The Future?

The best installations that I have seen are where there is an Electronic Navigation Chart (ENC) display adjacent to the radar. The ENC automatically displays all AIS targets and is integrated with the radar so that any radar targets being plotted are also displayed on the chart. In this way the watch keeper can concentrate on using the radar equipment for which he should have been fully trained but can also refer to the ENC for an overview of the vesselís position and can monitor and obtain extended AIS information from this secondary system without interfering with the familiar radar detail which he has been trained to use. Unfortunately there are two major problems with this arrangement. Firstly there is no requirement to carry an ENC and secondly, in contrast to the still rare officially licensed Electronic Chart display and Information System (ECDIS) which can replace the paper chart folio, the vast majority of ENC's currently in use do not meet the stringent specifications of an ECDIS for accuracy and corrections and come with the warning "Not to be used for navigation"! It is for this reason that radar has been chosen as the AIS screen display platform but I believe that with all the different radars incorporating the manufacturers (usually incorrect) ideas as to how information is accessed and presented to the user dangerous confusion will be the inevitable result of the rush to embrace AIS. However, I have been proven wrong so far so I am sure that I will be proven wrong again. I hope so!

*JCB*

*My thanks to Dr. Andy Norris for his kind permission to use the texts included with this article.*

## *Feedback Required*

*Feedback on experiences with all aspects of AIS are urgently required and reports should be sent to the dedicated "forum" link on the Nautical Institute website at:* ***www.nautinst.org/ais/***

*Pilots are ideally placed to provide valuable input through their experiences on a wide range of ships in varying environments. All information received is passed on to the relevant experts who will use it to identify and resolve operational problems, so please participate.*

*Serious errors should also be reported to the MCA on the form attached to MIN 231.*

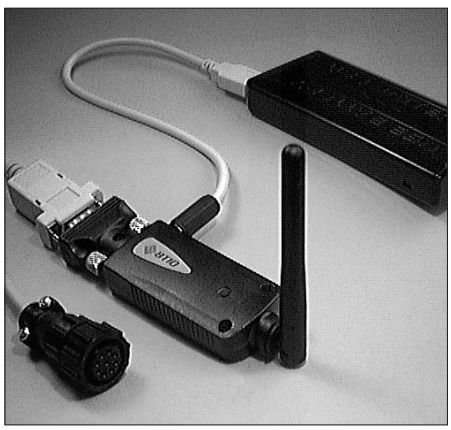
*Other MCA advice on AIS is contained within MGN 277 and MSN 1975.*

## *Y-TRONICS*

*Whilst I was preparing the AIS update feature I was contacted by a German company called Y-Tronics who market AIS hardware units and accessories. One item which will be of particular interest to pilots is a "Bluetooth" connector to remotely link a pilot's laptop to a vessel's AIS pilot plug. Ed Neale from Milford Haven is going to be testing this equipment on their pilot docking PDAs and laptop units so I hope to have a full report in a future issue.*

*Weblink:*
***www.y-tronic.com/english/start_en.htm***

*JCB*



*Bluetooth Pilot Plug*

# PENSION NEWS

## THE SECRETARIAT

February saw the handover of the Chairmanship of the Trustee Board from Ports to Pilots and Richard Williamson, a Boston pilot, was duly appointed to this position at the meeting held on 28th February 2006.

Aside from this little has changed at the Secretariat as we are still working hard trying to cope with all the changes arising from the Pensions and Finance Acts 2004 and the triennial valuation as well as the impact these will have on our systems, understanding of pensions and communicating it simply but sufficiently to members. Hopefully by the time you read this the worst of it will be over and we will have managed to have communicated and coped with all the changes successfully.

## VALUATION AS AT 31 DECEMBER 2004

It is beginning to feel like that by the time the ramifications of this valuation are finally done and dusted it will be time for the 2007 one to start.

The finalisation of the results of the triennial valuation was considered an appropriate time to review the factors used by the PNPF when calculating the various benefit options available to members. The two factors of particular relevance to members are:

- The Early Retirement Factor (ERF)
- Commutation Factor

It is the Fund's practice to reduce a member's pension if taken before normal retirement age. This is because it is expected that the member's pension will be paid for a longer period of time and thus the funds underpinning the pension will be invested for a shorter period of time. The factors are designed to be cost neutral to the pension being given up. At their February meeting the Trustees agreed to adopt the recommendation of the fund's actuary and these factors became effective on 28 February 2006.

The Fund's commutation factor had been 10 since the beginning of 1991, but the Trustees were advised by the actuary that although administratively easy and simple for members to understand it was, he felt, inequitable. It was agreed that age related factors that reflected the differences in the expected term of pension payments and thus the value of the pension being given up would be adopted as from 28.02.2006. The revised factors are:

| Ages | Factor |
|---|---|
| 65, 64 | 12 |
| 63, 62 | 13 |
| 61, 60 | 14 |
| 59, 58 | 15 |
| 57, 56, 55 | 16 |

## PENSIONS AND FINANCE ACTS 2004

Pension regulations continued to change during the course of 2005. Those effective from April 2005 were covered in my article of April 2005. Those that have come into force since are:

### From December 2005

The new scheme funding and investment requirements came into force on 30 December 2005. The main requirement of the investment regulations is the Statement of Investment Principles (SIP), which the Trustees must review once every three years and without delay after any significant change in investment policy. The Trustees must also consult with employers on the content of their SIP. The SIP must cover:

- The kinds of investment held.
- Balance between the investments
- The ways in which risks are measured and managed.
- Expected return
- Realisation of investments
- Extent to which social, environmental or ethical considerations are taken into account.

Scheme Specific Funding replaces the Minimum Funding Requirement (MFR) for valuations occurring after 23rd September 2005.

It now falls to the Trustees to decide both which actuarial method is used (provided that it is one of the accrued benefits methods) and also the value of the various economic, financial and demographic assumptions that are to be applied.

### From 6 April 2006

Scheme Rule Changes

Employers will be required to consult members if schemes are closed or changed for the future.

Cash Transfers or Refunds

Members who have at least 3 months but no more than 24 months qualifying service must be offered either a transfer payment based on the underlying benefits or a refund of their own contributions.

### Benefit Changes

Members have already been notified of the changes arising out of the valuation and tax simplification so I do not propose utilising space to reiterate what members already know. If you have not received a letter please let me know and I will ensure that a further copy is posted off to you.

## CHANGES TO PNPF RULES AND EXPLANATORY BROCHURES

Amended Explanatory Brochures and PNPF Rules will be sent out to members as soon as they have been reprinted.

## BENEFIT STATEMENTS

Members should have, by now, received their annual benefit statement for 2005. Apologies for the delay in getting them out but changes in benefits have meant that these statements have had to be manually calculated and checked. Your patience during this process was greatly appreciated.

## BUDGET MARCH 2006

On 22nd March 2006 the Chancellor delivered his Spring Budget Report. The general theme of this Budget was avoidance and how to plug the loopholes.

The general points of interest are:

### TAX ALLOWANCES

**Single Person**

| | |
|---|---|
| Aged under 65 | £5035 |
| Aged 65-74 | £7280 |
| Aged 75+ | £7420 |
| Aged income limit | £19,500 |

**Married Couple's Allowance**

| | |
|---|---|
| Aged under 75 | £6065 |
| Aged 75 and over | £6135 |
| Age income limit | £20,100 |

**Blind Person Allowance** £1610

**Income Tax Bands**

| | | |
|---|---|---|
| Starting rate | 10% | 0 - £2150 |
| Basic rate | 22% | £2015 - £33,300 |
| Higher rate | 40% | Over £33,300 |

*Debbie Marten*
*Debbie@pnpf.co.uk*

## Retirements

*November 2005 to January 2006*

| | | |
|---|---|---|
| **MC Battrick** | **PLA** | ***Dec*** |
| **AT Green** | **Liverpool** | ***Dec*** |
| **PE Keyes** | **PLA** | ***Dec*** |
| **GJ Taylor** | **Tees** | ***Dec*** |
| **RF Taylor** | **PLA** | ***Dec*** |
| **RD Smart** | **Liverpool** | ***Dec*** |

# EMPA REPORT

UKMPA representatives Paul Haysom (Gt Yarmouth), John Pearn (Milford Haven) and Chris Hughes (Europilots) attended the 40th General Meeting in Antwerp on the 5th & 6th April. The following is a précis of their report

**President:** Juha Tulimaa (Finland) has been elected EMPA president

## Secretary General's Report:

**Chris Lefevere (Belgium)**

At the EMPA meeting on 21/12/05 it was decided to meet on a regular basis to determine a common position on EU maritime policy. EMPA is now a member of the EU Maritime Board.

EMPA has a new office, shared with the Belgian Pilots.

Enquiries about membership have been received from Cyprus, Monaco and Ukraine.

**New Challenges** - The new EU Maritime Policy appears to bring closer the criminalisation of seamen and pilots; a German pilot was recently questioned by police following a collision with a trawler that crossed his bow. The EU Commission is redrafting its Directive in line with Parliaments requests. Pilots are at present excluded. The new EU Maritime Policy would appear to promote a maritime cluster approach in response to the rise of China and India. The European Transport Federation (ETF) is representing dock-workers; and consideration needs to be given to EMPA seeking stakeholder status to represent our interests. EMPA needs to improve the image of pilotage to offset criminalisation/competition and improve status. A forum needs to be developed to exchange information on local disputes and to share experiences.

**EMPA Journal:** The new editor Roger Allaert seeks more articles in an attempt to make the journal more interesting.

**Website:** www.empa-pilots.org is being updated with a new layout.

**The new EU Maritime Policy** was discussed and the aim of EMPA to become a pro-active organisation is being achieved.

**Deep Sea Pilots:** The "Erika 3" package calls on pilots to aid better targeting through the reporting of defects. Deep sea pilots are concerned that any vessels reported will be less likely to use their services again. The setting up of a PSSA in the Baltic and West Europe may lead to calls for compulsory pilotage for certain vessels.

## Health of Maritime Pilots

A study has been undertaken in Belgium regarding occupational accidents in maritime pilots.

**EMPA Technical and Training Committee Mobile Phones EMPA recommend extreme caution in the use of mobile phones.** A report in Norway has said the use of mobile phones on ships is hazardous.

**Embarkation:** Difficulty in boarding warships was discussed.

**Recent Accidents:** There were 2 fatalities in the US, Columbia River and Hawaii.

Also recently 3 helicopter accidents have resulted in 2 fatalities.

**Fatigue:** The cause of most accidents is human error with fatigue frequently being sighted. Belgian pilots have purchased a machine that measures fatigue through non-invasive eye scanning.

## Quality Assessment of Pilots

The last assessment was 1995 by the EU and since there is now a White Paper review being undertaken it is felt that there is a need to improve the image of pilots.

The objective is to measure pilot performance as seen by ship's masters who will be asked to complete a 5 minute questionnaire which will be presented in all pilot districts across the EU over a 14/30-day period.

**Marnis:** User requirements have been defined; other partners will now develop the technical specifications. A prototype portable laptop unit should be available in 2007.

Please note the new EMPA address: **EMPA, VZW Italiëlei ,74 B-2000 Antwerp Belgium.**

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# LETTER

As a pilot who is now approaching his 40th year in the profession (May 24th this year) and who will retire at the end of the year I feel it incumbent upon me to express my own personal feelings for the future of our profession. It has long been my belief that self-employment is the ONLY way ahead for pilotage in the UK, this belief being strengthened by my experience of having been employed twice during my time as a pilot with the majority of my career spent as self-employed.My first spell of employment was for a period of 2 years whilst on secondment from my home port Liverpool to ALCOA in Port Kamsar, Republic of Guinea in West Africa and the second period was back home in Liverpool following the 1987 Pilotage Act as an employee of the Mersey Docks & Harbour Company. This lasted for a period of 9 years whence we finally negotiated a return to our previous self-employed status.

I can say with my hand on my heart that the 9 years I spent in employment were the unhappiest in my career and which resulted in our Pilot Service reaching a position of rock bottom both in our remuneration and status as professionals. Happily I can report that since our return to self-employment in 1997 our status, remuneration and most of all our relationship with the Harbour Authority and its customers has improved beyond all recognition. I can equally say that the last 9 years in self-employment have been the happiest I have ever spent as a pilot and I believe that this feeling is largely shared by my fellow Liverpool Pilots.

Comparisons between ourselves and shore-based personnel are now a thing of the distant past and rightly so. A Pilot is by definition "An independent professional person" who, whilst he is on board a ship, is the servant of the ship-owner (not the ships master as I have seen quoted) and is given the conduct of that vessel by the master. Lord Jauncey in his Judgement in the Cavendish Report following an incident involving a PLA pilot created case law when he stated that the 1987 Pilotage Act did not alter the status of a pilot as an independent professional person whether he be in the employ of the CHA or not.

It is my own personal belief that the 1987 Pilotage Act has seriously undermined the position of pilots in the UK and since the simultaneous dismissal of 136 highly-experienced pilots on the number in January 2002 the number of employed pilots in the UK is now well in excess of those that are self-employed. The present government's policy still remains that they would like to see all UK pilots in the employment of their respective CHAs apparently on the grounds that "they would be more accountable". My own experience has shown that self-employed pilots are no less accountable than their employed counterparts and if anything seem to enjoy a higher level of respect from their own authorities.

In closing I would like to say that those who know me are aware of how passionately I feel about self-employment and I hope that this letter goes some way to explaining why I have vehemently opposed those civil servants who have attempted to implement present government policy and reverse what we have achieved in Liverpool. Their policies are the exact opposite of what I feel should be happening. As a member of the Section Committee of the UKMPA I would like to make it dear that the views I have expressed are solely my own and do not necessarily reflect the views of other members of the committee or of my fellow Liverpool Pilots.

*Dave Devey,*
*Liverpool Pilot*

# SECTION COMMITTEE Chairman's Report

I am writing this on behalf of our Chairman, Les, who is currently not available due to family ill health. I'm sure that you will all join me in sending him our thoughts and best wishes, during these difficult times.

Section committee continue to be fully committed, and we are currently assisting our colleagues in Belfast and Clyde, along with our long running assistance with Spurn Pilots, and SE Wales.

The situation in Belfast is nearing a conclusion, and I have been asked to pass on thanks to Dave Devey. I hope that Les will be able to report fully in the next issue.

A situation is developing on the Clyde, where it is anticipated that the next pilot recruit will be from within the port structure, and does not have the previous pre-entry qualifications. At this stage I would not want to report further.

We continue to meet the DfT on a regular basis, and they have been given the latest draft of our proposals for amendments to the Pilotage Act.

Don Cockrill, Avald Wymark, Gareth Rees and Brian Wilson continue to represent us with the Port Marine Safety Code (PMSC), National Occupational Standards (NOS) and Pilot Exeption Certificate (PEC) issues, Nigel Allen has become the front man for MarNIS. The T&TC have a full agenda here. It would appear that we may now be moving towards an involvement with PSSL (formerly BPIT), and have been invited to a meeting on May 25th.

As I write this John Pearn and Paul Haysom are attending the 40th EMPA General Meeting in Antwerp. EMPA contributed towards the rejection of the second port services directive; and, although a Lloyds List article reported it was "buried", a more recent article suggests that it may not yet be dead - it is rumoured that there will be a third attempt to introduce a Port Access Directive in autumn. We await the Directive in the autumn.

We are currently in the position of handing over the hosting and running of the UKMPA web site to a professional company, and I would like to give my personal thanks to Julian Lancaster (Tees) for his work over the years. Hopefully we will have a more used web site, with such things as circular letters being fully available, and other interactive areas. A separate circular will be sent giving details.

The situation with the PNPF moves ever closer (I feel) to a court case - we now have QC's giving differing opinions - and one saying I have heard (from another source) is "that we don't know what the law is, until a judge tells us". I'm sure that Debbie will touch upon it in her report. Richard Williamson, as Chairman of the trustees, has taken on a huge task, and thanks must go to his colleagues in Boston for their support.

We look forward to the Interim Delegate Conference on May 25th, by which time we hope to be able to report more fully on the on-going situations. Can I just remind you that Conference 2006 has been moved to November 15th/16th, just prior to the IMPA Congress, November 20th/24th.

*Joe Wilson, Vice Chairman*

## WORK IN PROGRESS

As detailed in Joe Wilson's report Section Committee members continue to work in the interests of the membership. Whilst much of the work is administrative the value of such work is essential in ensuring that our views are presented to the important national and international fora. Briefly, John Pretswell ensures that all the finances are kept healthy and the requisite returns made on time. Paul Haysom has been continuing his valuable work on the insurances and membership recruitment and the new insurance policies have resulted in interest from potential members.

The Technical and Training Committee continues to cover the many and varied topics within its remit and in particular continue to finalise the ETCS project which is now with the European Maritime Safety Agency (EMSA). The next meeting of the T&T committee is on the 28th April and committee Chairman Gareth Rees will be submitting a report for the July issue.

The most important area of UKMPA involvement at this time is with the DfT in working towards new legislation to replace the 1987 Pilotage act and within the Port Marine Safety Code Working Group (PMSCWG) to oversee compliance issues and the implementation of MAIB recommendations to that group. This diplomatically sensitive task has fallen to Don Cockrill who, along with Brian Wilson, attended two meetings on the 28th March which dealt National Occupational Standards (NOS) and Pilotage Exemption Certificates (PEC).

The following is a resume of Don's report of proceedings.

**NOS meeting** - Minutes of previous meeting (16/2/05)

It may be recalled that we submitted significant comment on the minutes of that meeting and I therefore suggested that the minutes should be effectively shelved with a note that the UKMPA disputed the minutes of 16/2/05. This was agreed by all.

**Potential outcomes** - There then followed what can best be described as intense and lively debate on the way forward. In general there was agreement on the ethos and aims of the NOS and although there was some opposition to the concept of a general mandatory qualification it was generally acknowledged that since the PMSC requires adoption of the NOS then in effect the NOS will be mandatory. There was general discussion and agreement on the concept of any qualification being a type of certificate of competence. This would cover generic matters for Pilots and Harbourmasters as appropriate. For pilots, the CHA authorisation would in effect cover the local components. Discussion also ensued on the value and feasibility of the recently launched MNTB Maritime Foundation Degree as an alternative.

For those who may not be aware it should be realised that a Foundation degree is not of the same standard as a conventional degree. It is more of a standard to be reached which would be regarded as an entry level for a degree course and offering various module exemptions from that course.

Brian explained The UKMPA'S ongoing work within Europe. In particular he detailed the ETCS project and also the ongoing resulting work with EMSA pending EMSA acceptance of ETCS.

**Awarding Authority** - It was discussed and agreed that in essence the MCA would be the awarding authority for the NOS competence certificate but this then involves examination and overseeing issues. It was generally agreed that the now established V103 VTS model could be appropriate for the NOS certification scheme.

**Target dates** - We have now been invited to participate in Port Skills and Safety Ltd. (PSSL) and a meeting has been scheduled by PSSL for 25th May to discuss the maritime certificate scheme and NOS issues.

The MCA proposed an outline target date for the NOS certification scheme to be in place by 2010. The DfT desire a shorter implementation and the UKMPA pointed out that the work was already done in respect of NOS and ETCS and that this working group needed to ensure that the UK system runs in line or indeed leads the European model.

**Process Routes** - Maritime Foundation Degree (MFD). - PSSL gave an outline description of the MFD and the Ports leg.

National Vocational Qualification (NVQ) training. - PSSL are keen on this avenue. Their variant is termed VRQ which would encompass all existing qualifications. It is exam based rather than the "on the job" assessments upon which the current NVQ system is based. The attraction is that it would qualify for government funding. The UKMPA do not

consider this appropriate for pilots.

**Specifications** - It was explained that whatever the system there is a need to take the NOS elements and convert them into specific targets towards a goal. MCA suggested that this should be contracted out to expert educationalists.

**Funding** - The Dft were asked to fund it on the basis of it being a Dft requirement. I pointed out that the Dft had already funded the work so far and so there was no point in them funding any repetition of the work to date. That went down well with the DfT. As ever it is a resources issue for the MCA.

**Way Ahead** - Brian explained that the ETCS EMSA timetable may well dictate the UK intentions.

**AOB** - There was very little more said. I took the opportunity to repeat points raised more than once during the meeting.

* That there must be no lowering of current professional standards. I earlier drew the meetings attention of the way in which STCW 95 has lowered standards rather than improving them.

* That the practical training MUST be done by serving pilots - it is not appropriate for the colleges to have too great a role in all this.

*Don Cockrill - 30/3/06*

# *PEC Steering Group Meeting*

*This was the first meeting of this group which followed directly on from the morning PMSCWG meeting. With the valuable assistance of Avald Wymark the UKMPA had made an extremely comprehensive submission concerning the remit of this committee to the MCA and were therefore disappointed that the terms of reference tabled for the meeting was as follows:*

- *To consider issues relating to PEC's in order to aid ports in the discharge of their statutory responsibilities.*
- *To consider MAIB report recommendations relating to PEC issues*
- *To report to the PMSCWG any recommendations for endorsement or further action*

*However Don reports that the MCA did acknowledge the receipt of the UKMPA submission and also confirmed that this had been the only submission received on the issue. The following is an edited extract from Don's report to the Section Committee:*

British Ports' Association (BPA) questioned the need for any review of PEC at all stating that they were not aware of any problems. The UK Major Ports Group (UKMPG) did likewise. There then ensued a debate, basically with UKMPA, UKHMA, DfT and MCA on one side and UKMPG, BPA and Chamber of Shipping on the other although one of the UKMPG representatives was supportive of a need to review the status quo. The debate and discussions were complex and involved but the UKMPA held a very strong position and argued the need for review supported by MCA referring to MAIB recommendations.

The MCA called on BPA and UKMPG to carry out a fact finding exercise amongst their members on their respective PEC systems and it was therefore with great delight that we were able to announce that the UKMPA had already done that – thanks to Avalds questionnaire – and that we would subsequently submit the respective port details to MCA. We also pointed out that we had previously supplied a significant number of Ports' PEC procedures about 12 months ago. This too was acknowledged by MCA.

The MCA requested that they wanted to be in receipt of the data before next **PMSC SG meeting on 8th June**.

The MCA have started to draw up a spreadsheet of differing standards in port PEC systems and whilst incomplete, they have already come to the conclusion that there are unacceptable inconsistencies in the standards. The UKMPG and BPA argued that ports should be allowed to determine respective requirements against their Risk assessments. I argued the point that if their Risk Assessments already required compulsory pilotage then it was obvious that a PEC holder had to have the same level of expertise for that ship and intended passage through the port as the pilot he replaced.

**Dates of next meeting:**

PMSC SG 8th June

PEC WG 26th September after the NOS meeting.

## *PEC DATA REQUIRED*

*In order to assist the UKMPA in presenting the case for PEC standards, please email Don:* ***don.cockrill@tesco.net*** *with any details of PEC incidents or observations, no matter how apparently inconsequential.*

# MT *STOLT ASPIRATION* / TUG *THORNGARTH* MAIB REPORT

*A consequence of changes to traditional tug operations has introduced new challenges for both tug masters and pilots. The increasing popularity of Azimuth Stern Drive (ASD) tugs has introduced a particular handling change since most of these tugs are designed with a bow towing winch resulting in towage over the bow. When on the stern or operating in the push-pull mode this does not cause too many problems but if required to operate on a centre lead the operation has increased risks of which pilots should be fully aware. On page 13 there is a review of the a monograph on this mode of towage published by the Nautical Institute and I would recommend that all pilots operating with tugs in this mode read this book in order to be aware of the risks and if possible also hold liaison meetings with the tug masters. When things go wrong operating in this mode the tug can rapidly lose control and the following is an edited extract from an MAIB report into one such incident.*

*Stolt Aspiration*, a 7901gt chemical tanker was bound for East Lewis Quay, Birkenhead.

Entrance to the Birkenhead Docks is through the Alfred Lock The master and pilot had discussed the passage plan, and the pilot had signed the ship's information sheet.

*Thorngarth*, a Twin Azimuth Stern Drive (TASD) tug of 45t bollard pull, had been tasked with assisting *Stolt Aspiration* along with the tug *Ashgarth*. Both *Thorngarth* and *Ashgarth* were TASD tugs and towed over the bow. The two tug masters agreed that *Thorngarth* would act as the bow tug during the planned operation.Neither tug had any mechanical defects.

As *Stolt Aspiration* approached Alfred Lock, the pilot began reducing speed steadily from 10 knots. The master of *Thorngarth* requested that *Stolt Aspiration* proceed at slow speed to allow the connection of the forward towline and, as this was normal practice, the pilot agreed.

As the tugs approached, the pilot noted his speed through the water as 6.5 knots and slowing. *Ashgarth* reported that his line was being made fast and that he was happy with the speed. *Thorngarth* then began to make his approach. Because *Thorngarth* is designed to pass its towline from its bow, the tug had to approach *Stolt Aspiration* bow-to-bow, then manoeuvre stern-first to maintain the correct station off the larger vessel. The pilot was unhappy with the speed of *Thorngarth*'s approach, and warned the tug master. The tug slowed and the approach continued. Thereafter, *Stolt Aspiration* maintained a steady course, with the speed continuing to slowly reduce. Having received a heaving line from *Stolt Aspiration*, and having positioned close under the ship's bow, *Thorngarth* backed away from her. The tug's stern began to move to port, and this was corrected to maintain its position right ahead of the ship. However, the tug's stern began to move to port again, which caused *Thorngarth* to move quickly across to the starboard side of *Stolt Aspiration*'s bow which, at this stage, was approximately 6 metres away from the tug. The tug master again attempted to position *Thorngarth* directly ahead of *Stolt Aspiration*'s bow, but this time, the corrective action caused the tug to move directly into the path of the vessel's bulbous bow. *Stolt Aspiration* struck *Thorngarth* on its starboard side, causing the tug to heel heavily to port while being bodily displaced to port by the impact.

On *Stolt Aspiration*, the pilot, noting the movement of *Thorngarth*'s masthead light, immediately ordered full astern, and used the bow thruster to counter the transverse thrust of the propellers and to maintain the vessel's heading.

*Ashgarth* also began to pull directly astern at full power to slow the ship.

*Thorngarth* managed to pull clear and since she could no longer assist the ship was released and the *Stolt Aspiration* resumed the berthing operation without further incident.

## Findings

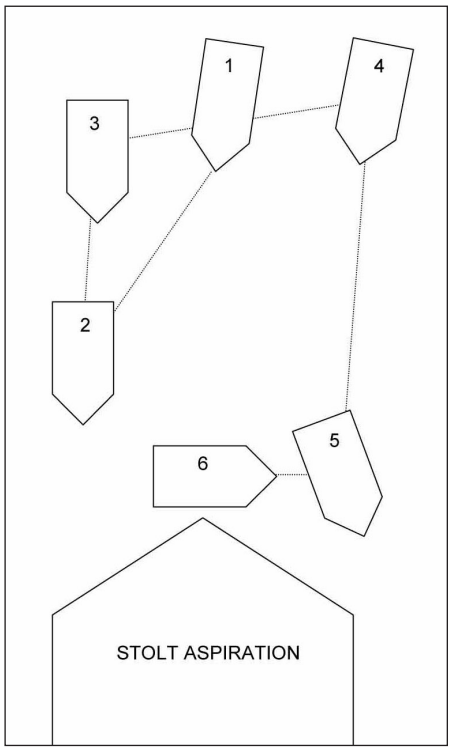
The master of the *Thorngarth* had been appointed to the tug 10 days before the accident and had never carried out this manoeuvre on this tug and, although as mate he had seen it done on tugs of similar configuration, he was not fully familiar with the manoeuvring characteristics of *Thorngarth*.

The collision occurred when the tug master was re-positioning his tug ahead of the ship **(Diagram)**. In backing away from the ship's bow, the stern of the tug began to move to port **(position 1)**. To correct this, he pushed the port ahead-astern handle forward, which swung the stern back to starboard.

However, this slowed the tug and it closed the ship **(position 2)**. Engine speed was increased to regain position ahead of the ship **(position 3)**. Once ahead of the ship, the stern again moved to port **(position 4)**, and again the port ahead/astern control handle was pushed forward to correct the swing. Because *Thorngarth* was now to starboard of *Stolt Aspiration*'s bow, as speed reduced due to the change in astern power, she ended up on the starboard bow of *Stolt Aspiration* **(position 5)**. In attempting to recover from this position, the tug master caused *Thorngarth* to move across the closing bow of *Stolt Aspiration* where he was hit on the starboard side **(position 6)**.

Tug manoeuvring controls and their propulsion systems cover a wide spectrum and, even among tugs of the same type, the speed of reaction of the propulsion gear to a control input will vary. As a consequence, any tug master will need to spend time familiarising himself with the controls of a new tug, even if he is familiar with the propulsion type and control system.

Although the change of personnel between different types of tug is a necessary part of the flexible operation of a tug fleet, doing so without extensive initial or ongoing familiarisation training, where the complexities and nuances of control of different tug types can be properly understood and practised by the personnel concerned, will inevitably increase the risk of mistakes being made during operational




*Movement of* Thorngarth *ahead of* Stolt Aspiration *(not to scale)*

situations. It was assumed that by the time an individual qualified as master, he would have experienced every type of tug manoeuvre, and that this experience would have been overseen by at least one other experienced master. No records were kept to monitor the training and experience gained.

## OTHER INCIDENTS

Two similar accidents occurred elsewhere within the UK, within 4 months of the collision between *Thorngarth* and *Stolt Aspiration*. In the first, a tug was operating as the stern tug in moving a ship astern. After being asked to pull the ship's stern to one side, the tug found it could not regain its original position, and collided with the ship's stern. The second incident occurred when a tug, acting as the bow tug in a berthing operation, was manoeuvring to pass its towline to the ship. Once the line had been passed to the ship, the tug intended to move ahead of the ship, but collided with her bulbous bow. In neither case were there any injuries or pollution caused. In both cases, the tug masters had a wealth of experience in tug operations within their respective ports. However, both were operating tugs with unfamiliar propulsion systems and manoeuvring controls, and attempting manoeuvres with which they were not entirely familiar.

**Safety issues identified as a result of the investigation.**

1. Fatigue was not an issue in this accident.
2. There were no mechanical failures on either vessel that could have led to the collision.
3. The accident occurred when the tug master of *Thorngarth* was adjusting his position ahead of the ship and, due to his unfamiliarity with the tug, misjudged the amount of control movement required.
4. There was little that *Stolt Aspiration*'s crew could have done to prevent the collision.
5. Although the change of personnel from tug type to tug type is a necessary part of the flexible operation of a tug fleet, doing so without extensive initial or ongoing familiarisation training, where the complexities and nuances of control of different tug types can be properly understood and practised by the personnel concerned, will inevitably increase the risk of mistakes being made during operational situations.
6. The bow-to-bow approach is conducted many times a day by tugs throughout the world.
7. No formal guidance was given to pilots concerning the capabilities and limitations of tugs in the port.
8. The introduction of new qualifications for Inshore Tug Operators has standardised the training requirements. The previous system was not satisfactory in that it relied on personnel gaining the relevant experience over time but no records of experience gained were maintained.
9. The pilot and master of a ship would not know which type of tug has been allocated to the vessel until just before the planned operation. However, they could be confident that the tug would make the bollard pull requirement and would be capable of carrying out the designated task, despite not necessarily being the optimum choice of tug for the task.
10. There was no forum for the tug operators, pilots and port authority to raise matters of mutual concern.
11. By not informing the VTS operators of the accident, the VTS operators were unable to co-ordinate the response from the rescue services.
12. Two other accidents occurred elsewhere in the UK in a short period of time, both also caused when tug masters were operating tugs with unfamiliar propulsion systems and manoeuvring controls, and attempting manoeuvres with which they were not entirely familiar.

## RECOMMENDATIONS

**The British Tugowners Association** is recommended to:

Encourage its members to ensure that the movement of personnel between tugs is closely monitored, and that training and expertise of tugs' crews are matched, and are consistent with the type of tug and its expected task requirement.

**Major Tug Operators, the British Tugowners Association, and the PMSC Steering Group** are jointly recommended to encourage regular formal discussion between port authorities, pilots and tug operators. All parties should be involved in the decision-making process, which will decide the optimum allocation of tugs for all manoeuvres within a port, and the level of crew experience required for each task.

# MOORING BITTS FOR TOWAGE

During the last few years tug companies have upgraded their fleets to include more powerful tugs and many of these new tugs are rated with a bollard pull of over 60 tonnes. In addition to the problems identified in the previous MAIB report, pilots also now need to be aware of the load specifications of the mooring bitts of a vessel which may also used for towing. In recent years it has become mandatory to mark the Safe Working Load (SWL) on the bollards and this has been useful in guiding us as to how much tug power can be used. In view of this I was interested to learn from the specifications that the actual SWL for towing is actually twice the bitt rating and this is explained in the following extract from the construction rules:

*The British Standard refers to the methods of belaying the rope as 'mooring' for figure-of-eight belaying, and 'towing' for loop belaying. The 'towing' SWL is twice the 'mooring' SWL. The reason that the SWL depends on the method of rope belaying is that certain belaying methods tend to pull the two posts together and thus induce a higher stress in each barrel than that produced by an eye laid around a single post. With figure-of-eight belaying, the loading in each post corresponds to the sum of all forces in the successive rope layers, which can be higher than the maximum rope load. Experienced mariners are aware of this phenomenon and have devised methods that effectively distribute the external load over the two posts (for instance, by taking one or two turns around the first post before starting to belay in figure-of-eight fashion). Nevertheless, IS0 takes a conservative approach by assuming that some mariners may lack this knowledge.*

There is only one problem with this and it is a major one. Experience indicates that ship owners usually take the maximum rating from the bitts and then use this figure to calculate the rating for the fairleads so, unless the fairlead is clearly marked at the higher rating then it is prudent to only use the marked SWL rating as the maximum for towing. This factor possibly explains why there are increasing reports of fairleads rather than the bitts failing whilst towing! I have also been advised that the load ratings are set by the manufacturers of the fairleads and bitts but the SWL marked is not necessarily applicable to the fixing to the deck or bulwarks!

# OBITUARY

## John (Iain) Robert Cambell Peterson (1936-2006)

There was a great sadness felt by many with the news that Iain Peterson had passed away on the 25th January 2006. He fought a yearlong battle with cancer showing courage, hope, spirit and dignity, which amazed and humbled all who witnessed his struggle. A memorial service was held for Iain in Dollar Parish Church, to which more than 500 people attended, a mark of the esteem to which Iain was held. The music pieces played before and after the service were Iain's own compositions.

Iain was born on the 11th December 1934 in Leith. His father, a master mariner, was one of the original Shetland Fiddlers but was sadly lost at sea in 1940. Iain's mother returned to her native Ardnamurchan where Iain was brought up. He spent his early years at the local village school and then moved to Tobermorry on the Island of Mull to begin his secondary education. It was here that Iain's appetite for music was kindled anew. Iain completed his secondary education at Keil School in Dumbarton before going to Glasgow University. On leaving university, the British army was Iain's home for the next two years serving his national service in the Royal Artillery, mostly in Germany.

The phrase "call of the sea" may well have been coined for the inhabitants of the Ardnamurchan Peninsular, the most westerly place on the British mainland, as most of the male population went to sea. With the history of seafaring in Iain's family, it was inevitable he would follow suit joining his first ship the *Pacific Unity* in 1956. After gaining his 2nd Mate's ticket, he was 3rd Mate on the YOMA

(Paddy Henderson), which coincidentally was the ship upon which I did my first trip. Iain moved to Scottish Ship Management and gained his first command on the *Barron Dunmore*.

He joined the Forth Pilotage as a Grangemouth pilot in 1974 and retired in 1993 through ill health. During his time as a pilot, Iain was well liked and highly respected by all. In an administrative capacity, he served on various committees and was chairman of the Association of Forth Pilots from March 1992 until April 1993. He was instrumental in setting up the first social committee of the Forth Pilots with Norman Sinclair and Iain Rutherford. Those who attended the UKPA's conference in November 1991 in Edinburgh will remember well the Ceilidh which Iain arranged.

Iain was a keen sportsman, particularly rugby which he played and refereed, something that rubbed off on his sons. He was also an ardent curler and a season ticket holder of his local football team, St Johnston in Perth. Iain was also a keen and competent golfer. He was captain of The Zetland Club which was formed almost 100 years ago by exiled Shetlanders in Edinburgh. Latterly, he played in the senior's circuit in the Central Belt of Scotland. Iain participated in the pilot's national annual golfing three-day event, both as a working pilot and a retired one.

Iain was an accomplished piper and fiddler and adjudicated at several events. In 2001, Iain was invited to open the Shetland Accordion & Fiddle Festival which is one of the most prestigious events in the whole of Scotland. In Perth in 2004, Iain was presented with a Lifetime Achievement Award by the National Accordion & Fiddle Association. In addition to numerous recordings of his music, which is regularly featured on Radio Scotland, he also wrote 15 musical books which have been published. His love of music was recognised internationally. Some years ago I walked into a store in Auckland, New Zealand. The proprietor, hearing my accent, asked me where I was from. When I said Grangemouth, he immediately inquired if I knew Iain Peterson. He had an array of Iain's music for sale.

Iain, it was said, was never happier than when messing about in boats - be it fishing with his grandchildren or just meandering among the coves of the peninsular where he was raised. Perhaps it is fitting that he was finally laid to rest at Kilchoan, Ardnamurachan.

Iain's wife Sheilis, his four children and nine grandchildren survive him. They were the fulcrums around which his life rotated. By all who new him, he will be sorely missed. The legacy of his music will continue to be studied and performed by future generations of musicians - a lasting tribute to a remarkable man.

*Stuart Hulse*

## Pensioners Deceased

### November 2005 - January 2006

| | |
|---|---|
| **GA Brace** | ***London North*** |
| **TW Day** | ***London-Thames*** |
| **JK Dickinson** | ***Liverpool*** |
| **JM Leney** | ***Milford Haven*** |
| **RN Morgan** | ***SE Wales*** |
| **B Nicolle** | ***London-North*** |
| **H Richards** | ***SE Wales*** |
| **L Tock** | ***Humber*** |
| **AW Venn** | ***Newport*** |
| **RF Youde** | ***Liverpool*** |

## INSURANCES

Insurances are now arranged through Ropner Insurance services.

**RSA 3RD PARTY LIABILITY INSURANCE**

In the event of an incident involving death, bodily injury or pollution or where the MAIB has been notified, LEGAL ADVICE WILL BE INITIATED BY CONTACTING 24/7:

Les Cate: Home 01243 544428
mobile: 07788 654858

Joe Wilson: Home 01642 750395
mobile: 07881 958274

Non serious claims and those relating to LOSS OF INCOME AND LEGAL EXPENSES

Ken Pound (Ropner): 0207 488 4533

Or

Drew Smith (Circle Insurance): 0141 249 9914

All incident reports to be sent to Ken Pound
Claim forms can be downloaded from the UKMPA website: **www.ukmpa.org**

# BOOK REVIEW

## BOW TUG OPERATIONS WITH AZIMUTH STERN DRIVE TUGS

***Henk Hensen***

Azimuth Stern Drive (ASD) tugs are now an increasingly popular choice by tug operators in the major ports, mainly due to increased efficiency and lower maintenance costs when compared to the Voith Schneider "Tractor" tugs. Whereas the tug masters are (or should be!) given specific training prior to taking command of such tugs, pilots do not normally receive any formal training in working with them and this ignorance could lead to a serious incident. This monograph published by the Nautical Institute is therefore essential reading for any pilot in ports utilizing ASD tugs.

Although the best utilization of ASD tugs is in the push-pull mode, the design of many large container ships or car carriers leaves very little parallel body forward of amidships thus limiting the position options for a bow tug in the push-pull mode. This factor has resulted in ASD tugs operating on a centre lead forward in either the bow to bow or stern to bow modes. Whilst some ASD tugs are fitted with hooks / winches for towing over the stern, this is not generally the most efficient towage point and although this book doesn't set out to recommend either practice I was quite surprised to discover that in many circumstances bow to bow operation is safer than stern to bow for this class of tug. Since most ASD tugs are designed with the towing winch on the bow it is this utilization which is mainly addressed in this informative booklet.

The first key factor in the success of bow to bow towage is the training and experience of the tug master and Henk quotes one such master as estimating three years to become fully proficient in the procedure. Being a ship handling situation of course means that all is not a simple as the aforementioned indicates since there are different designs and controls of ASD tugs which means that even a very experienced tug master may not be able to transfer to another ASD tug and immediately be proficient in handling it! The control of the thrusters can vary from a single joystick two separate thruster controls and such design elements as skeg length have a major impact on handling such tugs stern first.

The second key factor is where the pilot comes in and that is the vessels speed which will generally need to be much slower than with conventional or tractor tugs. Henk explains in detail the hydronamic forces acting on the tug and the effects of interaction between the tug and ship whilst the approach is made to connect up the tow. The analysis indicates that an optimum speed is around 5 knots with 7 knots being considered an absolute maximum. This may result in the pilot having to amend the location where he normally connects up the tugs. Going too slowly can also be problematic as Henk states "Most stern drive azimuth tugs have powerful engines and at a relatively low speed thruster steering actions result in a rather nervous tug stern". Wind and sea conditions will also affect the manoeuvre and various recommended approach techniques are explained with relation to the vessel type and wind conditions. As the tug approaches the connection position it is at its most vulnerable and a loss of control can result in the tug being swept bodily to one side and down along the ship's side which is termed "tripping". Since all this will be going on mainly outside of the pilot's field of view and with generally unreliable communication with the ship's fo'c'sle coupled with the tug master concentrating on handling his tug it is essential that the pilot should have a good mental picture of what is involved in the operation and reading this monograph will provide this essential information. It must always be borne in mind that most fixed propeller container ships will have a dead-slow ahead speed in excess of the optimum bow-bow connection speed so a pilot should ensure that he can bring the vessel to the correct speed when the bow tug approaches because if the tug master has any doubts about the safety of the operation then he will not come in to connect up the tow. The book therefore highlights the need for good co-operation and communications between the tug and pilot.

The book concludes with a brief mention two cases where bow-bow towage has resulted in an incident. In both cases (MV *River Yarra* & Tug *WJ Trotter* and the *Stolt Aspiration* & *Thorngarth*) the reports highlight the lack of pilot training in the capabilities of ASD tugs. Henk admits that simulators are currently incapable of reproducing the hydrodynamic effects on bow to bow operations so pilots should ensure that their HA arranges for them to receive appropriate training perhaps by accompanying an experienced tug master to observe a few manoeuvres.

In conclusion this monograph is essential reading for all pilots working with ASD tugs and at 23 pages long it is concise with clear explanations and diagrams.

*The Monograph is available from the Nautical Institute. Cost: £10.50 members, £15 non-members. P&P UK £2.00*

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