

# A Study into the Working Hours of Maintenance Personnel and Recommendations for “Good Practice”

*Stephen Griffin*  
*UK Civil Aviation Authority*

## **Introduction**

The maintenance of acceptable levels of alertness, performance capabilities and safety is of major concern in almost all situations where individuals are required to work beyond the “normal 8 hour day” and “five-day week”. This is particularly so in safety critical roles such as those in the aviation industry.

## **Background**

In the case of flight crew, flying for the purpose of public transport in the UK, Articles 71 -74 of the Air Navigation Order clearly states the responsibilities of both flight crew and operators with respect to fatigue of crew and flight times. An operator of an aircraft must establish a scheme for the regulation of flight times for every person flying in that aircraft as a member of its crew. The scheme must then be approved by the UK CAA. Guidance on the requirements and on how to establish an acceptable scheme are published in Civil Aviation Publication 371 “The Avoidance of Fatigue in Aircrews”. In order to ensure that it meets these statutory responsibilities the UK CAA has an ongoing research programme into aircrew fatigue.

In response to concerns voiced about air traffic control safety, the UK CAA set up, in January 1989, a committee to consider the regulation of the duty hours of civil air traffic control officers (ATCOs) in the UK. As a result of its deliberations, the Committee made a series of specific recommendations concerning the rest and duty hours of ATCOs. Based on these recommendations, the Scheme on the Regulation of Air Traffic Controllers’

Hours was implemented by the UK CAA’s Safety Regulation Group (SRG) in 1991.

No limits, recommendations or regulations, similar to those which apply to flight crew and air traffic controllers, exist for the control of fatigue and the working hours of maintenance personnel. This is so despite their obvious involvement in the safety of aviation. However, in recent years, there have been a number of reports, through the Confidential Human Factors Incident Reporting Scheme, detailing incidents associated with fatigue and overlong working periods from maintenance engineers. These reports, together with concerns over the shortage of licensed maintenance engineers, persuaded the UK CAA that work was required to ascertain to what extent a problem existed and to establish recommendations for good working practice.

## **The Study**

Professor Simon Folkard, of the Body Rhythms and Shiftwork Centre of The Department of Psychology, University of Wales, Swansea, was asked to submit a proposal for the study. A programme of work was agreed in January 2001. Its purpose is to determine the current work hours and shift systems of aircraft maintenance personnel and also to draw up recommendations for good practice that should, if followed, minimise the risk of errors resulting from fatigue. The work is being undertaken in four phases.

**Phase 1** of the study involves writing to companies in the UK employing aircraft maintenance personnel. They will, inter alia, be asked, through a questionnaire, for details of the type of shift system(s) they use, the number of individuals on each

system and the type of maintenance they undertake. In addition, information will be requested concerning annual working hours of maintenance engineers and levels of overtime. A copy of the questionnaire is as Appendix A to this paper.

**Phase 2** of the study is running parallel with phase 1. A questionnaire has been sent to all licensed maintenance engineers resident in the UK. A copy of the questionnaire is included as Appendix B to this paper. They will be completed anonymously and returned directly to the University of Wales. Particularly they will not be seen by employees of the UK CAA. Some 7500 questionnaires were distributed in early March 2001. From a statistical point of view it is hoped that some 2000 will be returned.

**Phase 3** will examine the work hour and shift system practices determined in phases 1 and 2. It will be concerned with establishing the relationship, if any, between the various features of the shift systems and work hour practices identified with the ratings of fatigue given in the questionnaire. It will also model the potential impact of these features on alertness. Finally, the potential implications of the various features of the shift schedules in operation on the risks of errors, mistakes and /or injuries will be considered.

**Phase 4** will involve drawing up a set of recommendations for good practice based on the available scientific literature, especially that pertaining to accident risk, and the results derived from phases 1, 2 and 3 of the study. In addition, account will be taken of any recommendations that result from the current work in this area in other countries, notably the USA, Canada and Australia. The recommendations will be drawn up in such a manner as to allow the greatest flexibility possible. They will take account of the range of work hour and shift system practices in operation as well as the nature of the maintenance being performed.

## **Timescales**

Work began in February 2001 and the questionnaires were sent to companies and individuals early in March. It is anticipated that the report resulting from the work undertaken in phases 1-3 will be available to the Authority by the end of August 2001. The "Recommendations for Good Practice" emanating from phase 4 should be with the Authority by November 2001.

## **Conclusions**

The UK CAA is of the opinion that this will prove to be an extremely useful piece of work in aiding the establishment of acceptable and safe working practices for maintenance engineers. It is anticipated that the recommendations resulting from this study will help set work patterns for aircraft maintenance engineers which are designed to prevent the onset of undue fatigue.

Finally, this work can only be successful with the co-operation of the companies employing aircraft maintenance engineers and the individual engineers participating in the survey. Please accept the grateful thanks of the UK CAA. Our thanks also go to the good offices of CHIRP. There will be updates of progress in "Feedback" magazine as appropriate.



# Appendix A: Aircraft Maintenance Companies Survey of Shift Systems

## Section A: Your Company's details.

(Please tick the appropriate answer(s) or write answer in the space provided.)

What is the name of your company?.....

A2. Which airport(s) do your engineers/mechanics work at? .....

A3. How many aircraft engineers/mechanics do you employ?

    Certifying .....                      Non-certifying .....

A4. What is the weight of the aircraft that your engineers/mechanics normally work on?  
(tick as many as necessary)

Up to 2730 Kg                       2730-5700 Kg                       Over 5700 Kg

A5. How many different shift systems do you employ engineers/mechanics on? .....

## Section B: Your Company's shift systems.

Please use the following pages to supply details of **each** of the shift systems that you employ aircraft maintenance engineers/mechanics on. Please note that we are **only** interested in the maintenance engineers' and mechanics' shift systems, and **not** in any other shift system(s) that you may use for other personnel. We have supplied enough pages to deal with up to five different shift systems. If you use fewer than five different shift systems then please leave the surplus pages blank. If you use more than five different shift systems then please make as many additional copies as necessary of the final page.

**Thank you for your help in completing this questionnaire!**

## Shift System 1

1. How many aircraft engineers/mechanics do you employ on this shift system?

Certifying ..... Non-certifying  
.....

2. How many hours per week are the engineers/mechanics employed on this shift system contracted to work?

Certifying ..... Non-certifying  
.....

3. How many hours overtime do the engineers/mechanics employed on this shift system typically work per week?

Certifying ..... Non-certifying  
.....

4. How many days annual leave (including Public Holidays) do the engineers/mechanics employed on this shift system have?

Certifying..... Non-certifying .....

5. How many teams of engineers/mechanics does the shift system involve? .....

6. How many different shifts (i.e. morning, afternoon, night, etc) does the shift system involve? .....

7. How many days/weeks does the shift system take for

one complete cycle?  
.....days/weeks

(delete as necessary)

**Please complete the following table with respect to the various shifts involved in this shift system.** Please use the 24-hour clock when specifying times (e.g. 20:30 rather than 8:30 pm). When giving the length of the shift please specify the length of time that the engineers/mechanics are paid for (i.e. excluding any unpaid breaks, etc). If your shift system involves any shifts in addition to the standard Morning (or Day), Afternoon (or Evening) and Night shifts, then please give a unique name and symbol for each of these in the spaces provided.

Shift	Symbol	Start Time	Finish Time	Length (Hours:Mins)	Number of Breaks	Total length of Breaks
Morning (or Day)	M	:	:	:		
Afternoon (or Evening)	A	:	:	:		
Night	N	:	:	:		
Other 1:		:	:	:		
Other 2:		:	:	:		
Other 3:		:	:	:		
Other 4:		:	:	:		

Please **use the symbols from the above table** (and an "R" for Rest days) **to show one complete cycle** of this shift system for any given individual in the table below. An example is given in the first line. If the cycle is longer than 12 weeks please continue on a separate page clearly marked with the number of the shift system.

Week	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Example:	M	M	A	A	N	N	R
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							

12							
----	--	--	--	--	--	--	--

## Shift System 2

- How many aircraft engineers/mechanics do you employ on this shift system?  
 Certifying ..... Non-certifying .....  
 .....
- How many hours per week are the engineers/mechanics employed on this shift system contracted to work?  
 Certifying ..... Non-certifying .....  
 .....
- How many hours overtime do the engineers/mechanics employed on this shift system typically work per week?  
 Certifying ..... Non-certifying .....  
 .....
- How many days annual leave (including Public Holidays) do the engineers/mechanics employed on this shift system have?  
 Certifying..... Non-certifying .....
- How many teams of engineers/mechanics does the shift system involve? .....
- How many different shifts (i.e. morning, afternoon, night, etc) does the shift system involve? .....
- How many days/weeks does the shift system take for  
 one complete cycle?  
 .....days/weeks  
 (delete as necessary)

**Please complete the following table with respect to the various shifts involved in this shift system.** Please use the 24-hour clock when specifying times (e.g. 20:30 rather than 8:30 pm). When giving the length of the shift please specify the length of time that the engineers/mechanics are paid for (i.e. excluding any unpaid breaks, etc). If your shift system involves any shifts in addition to the standard Morning (or Day), Afternoon (or Evening) and Night shifts, then please give a unique name and symbol for each of these in the spaces provided.

Shift	Symbol	Start Time	Finish Time	Length (Hours:Mins)	Number of Breaks	Total length of Breaks
Morning (or Day)	M	:	:	:		
Afternoon (or Evening)	A	:	:	:		
Night	N	:	:	:		
Other 1:		:	:	:		
Other 2:		:	:	:		
Other 3:		:	:	:		
Other 4:		:	:	:		

Please **use the symbols from the above table** (and an “R” for a rest days) **to show one complete cycle** of this shift system for any given individual in the table below. An example is given in the first line. If the cycle is longer than 12 weeks please continue on a separate page clearly marked with the number of the shift system.

Week	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Example:	M	M	A	A	N	N	R
1							
2							
3							
4							
5							
6							
7							
8							
9							

10							
11							
12							

### Shift System 3

- How many aircraft engineers/mechanics do you employ on this shift system?  
 Certifying ..... Non-certifying .....  
 .....
- How many hours per week are the engineers/mechanics employed on this shift system contracted to work?  
 Certifying ..... Non-certifying .....  
 .....
- How many hours overtime do the engineers/mechanics employed on this shift system typically work per week?  
 Certifying ..... Non-certifying .....  
 .....
- How many days annual leave (including Public Holidays) do the engineers/mechanics employed on this shift system have?  
 Certifying..... Non-certifying .....
- How many teams of engineers/mechanics does the shift system involve? .....
- How many different shifts (i.e. morning, afternoon, night, etc) does the shift system involve? .....
- How many days/weeks does the shift system take for one complete cycle?  
 .....days/weeks  
 (delete as necessary)

**Please complete the following table with respect to the various shifts involved in this shift system.** Please use the 24-hour clock when specifying times (e.g. 20:30 rather than 8:30 pm). When giving the length of the shift please specify the length of time that the engineers/mechanics are paid for (i.e. excluding any unpaid breaks, etc). If your shift system involves any shifts in addition to the standard Morning (or Day), Afternoon (or Evening) and Night shifts, then please give a unique name and symbol for each of these in the spaces provided.

Shift	Symbol	Start Time	Finish Time	Length (Hours:Mins)	Number of Breaks	Total length of Breaks
Morning (or Day)	M	:	:	:		
Afternoon (or Evening)	A	:	:	:		
Night	N	:	:	:		
Other 1:		:	:	:		
Other 2:		:	:	:		
Other 3:		:	:	:		
Other 4:		:	:	:		

Please **use the symbols from the above table** (and an “R” for a rest days) **to show one complete cycle** of this shift system for any given individual in the table below. An example is given in the first line. If the cycle is longer than 12 weeks please continue on a separate page clearly marked with the number of the shift system.

Week	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Example:	M	M	A	A	N	N	R
1							
2							
3							
4							
5							
6							
7							

8							
9							
10							
11							
12							

**Shift System 4**

1. How many aircraft engineers/mechanics do you employ on this shift system?

Certifying ..... Non-certifying .....

2. How many hours per week are the engineers/mechanics employed on this shift system contracted to work?

Certifying ..... Non-certifying .....

3. How many hours overtime do the engineers/mechanics employed on this shift system typically work per week?

Certifying ..... Non-certifying .....

4. How many days annual leave (including Public Holidays) do the engineers/mechanics employed on this shift system have?

Certifying..... Non-certifying .....

5. How many teams of engineers/mechanics does the shift system involve? .....

6. How many different shifts (i.e. morning, afternoon, night, etc) does the shift system involve? .....

7. How many days/weeks does the shift system take for

one complete cycle? .....days/weeks

(delete as necessary)

**Please complete the following table with respect to the various shifts involved in this shift system.** Please use the 24-hour clock when specifying times (e.g. 20:30 rather than 8:30 pm). When giving the length of the shift please specify the length of time that the engineers/mechanics are paid for (i.e. excluding any unpaid breaks, etc). If your shift system involves any shifts in addition to the standard Morning (or Day), Afternoon (or Evening) and Night shifts, then please give a unique name and symbol for each of these in the spaces provided.

Shift	Symbol	Start Time	Finish Time	Length (Hours:Mins)	Number of Breaks	Total length of Breaks
Morning (or Day)	M	:	:	:		
Afternoon (or Evening)	A	:	:	:		
Night	N	:	:	:		
Other 1:		:	:	:		
Other 2:		:	:	:		
Other 3:		:	:	:		
Other 4:		:	:	:		

Please **use the symbols from the above table** (and an “R” for a rest days) **to show one complete cycle** of this shift system for any given individual in the table below. An example is given in the first line. If the cycle is longer than 12 weeks please continue on a separate page clearly marked with the number of the shift system.

Week	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Example:	M	M	A	A	N	N	R
1							
2							
3							
4							
5							
6							

7							
8							
9							
10							
11							
12							

**Shift System** .....(Please specify)

1. How many aircraft engineers/mechanics do you employ on this shift system?

Certifying ..... Non-certifying  
.....

2. How many hours per week are the engineers/mechanics employed on this shift system contracted to work?

Certifying ..... Non-certifying  
.....

3. How many hours overtime do the engineers/mechanics employed on this shift system typically work per week?

Certifying ..... Non-certifying  
.....

4. How many days annual leave (including Public Holidays) do the engineers/mechanics employed on this shift system have?

Certifying..... Non-certifying .....

5. How many teams of engineers/mechanics does the shift system involve? .....

6. How many different shifts (i.e. morning, afternoon, night, etc) does the shift system involve?  
.....

7. How many days/weeks does the shift system take for

one complete cycle?  
.....days/weeks

(delete as necessary)

**Please complete the following table with respect to the various shifts involved in this shift system.** Please use the 24-hour clock when specifying times (e.g. 20:30 rather than 8:30 pm). When giving the length of the shift please specify the length of time that the engineers/mechanics are paid for (i.e. excluding any unpaid breaks, etc). If your shift system involves any shifts in addition to the standard Morning (or Day), Afternoon (or Evening) and Night shifts, then please give a unique name and symbol for each of these in the spaces provided.

Shift	Symbol	Start Time	Finish Time	Length (Hours:Mins)	Number of Breaks	Total length of Breaks
Morning (or Day)	M	:	:	:		
Afternoon (or Evening)	A	:	:	:		
Night	N	:	:	:		
Other 1:		:	:	:		
Other 2:		:	:	:		
Other 3:		:	:	:		
Other 4:		:	:	:		

Please **use the symbols from the above table** (and an “R” for a rest days) **to show one complete cycle** of this shift system for any given individual in the table below. An example is given in the first line. If the cycle is longer than 12 weeks please continue on a separate page clearly marked with the number of the shift system.

Week	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Example:	M	M	A	A	N	N	R
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							

# Appendix B: Aircraft Maintenance Personnel Survey of Work Hours

**Section A: Your personal details.**

(Please tick the appropriate answer or write answer in the space provided.)

- A1. Gender:  Male  Female
- A2. Date of birth:...../...../.....(dd/mm/yy)
- A3. Are you a certifying engineer?  Yes  No
- A4. What is the maximum weight of aircraft that you normally work on?  Up to 2730 Kg  
 2730-5700 Kg  Over 5700 Kg
- A5. Who are you employed by (name of company)  
.....
- A6. Are you employed:  Directly  Subcontracted
- A7. Do you work in the UK?  Yes  No
- A8. Which airport do you work at?  
.....
- A9. No of years in Aircraft Maintenance.....
- A10. No of years in present job.....
- A11. No of years on **present** shift system.....
- A12. Is your shift system currently under review?  
 Yes  No
- A13. No of years in shiftwork **altogether**  
.....
- A14. On average, how long does it take you to travel to or from work?.....hours.....minutes

	Definitely not	Probably not	In between	Probably yes	Definitely yes				
A15. Are you the sort of person who feels at their best early in the morning, and who tends to feel tired earlier than most people in the evening?	1	2	3	4	5	6	7	8	9
A16. Are you the sort of person who finds it very easy to sleep at unusual times or in unusual places?	1	2	3	4	5	6	7	8	9

**Section B: Your Work Schedule.**

Please use the following codes in the tables below to show (i) what you were **scheduled to work** over the past four weeks and (ii) what you **actually worked** (i.e. including any swapping of shifts, overtime, or doubling of shifts, etc.) over the past four weeks.

**M** = Morning (or Early), Shift      **A** = Afternoon (or Evening) Shift      **R** = Rest Day  
**D** = Day shift      **N** = Night Shift      **O** = Other .....

**(i) Scheduled to Work**

Week	Mon	Tue	Wed	Thurs	Fri	Sat	Sun
1							
2							
3							
4							

**(ii) Actually Worked**

Week	Mon	Tue	Wed	Thurs	Fri	Sat	Sun

*(Please specify)*

1							
2							
3							
4							

Each of the following questions requires you to **give four answers**. You should use the first answer (scheduled) to indicate what you have been scheduled to work according to your shift system or roster over the past year. In your second answer (normal) you should indicate what you actually normally worked (on average) over the past year (i.e. including any overtime, doubling of shifts, etc.). In your third and fourth answers you should indicate the minimum and maximum, (or the earliest and latest for questions B16-B21), that you ever worked over the past year. For example, you may be scheduled to work a 42-hour week, normally work a 50-hour one, and the actual hours in any one week might vary from a minimum of 36 hours to a maximum of 72 hours.

Please **make sure that you fill in all four answers to each question** even if all the answers are the same. If a question doesn't apply to you because of the nature of your shift system please mark it "N/A".

	<b>Scheduled</b>	<b>Normal</b>	<b>Minimum</b>	<b>Maximum</b>
B1. How many hours do you work per week?	.....hours	.....hours	.....hours	.....hours
B2. How long are your Morning or Day shifts?	.....hours	.....hours	.....hours	.....hours
B3. How long are your Afternoon shifts?	.....hours	.....hours	.....hours	.....hours
B4. How long are your Night shifts?	.....hours	.....hours	.....hours	.....hours
B5. Within each shift, how long do you work for before having a break?	.....hours	.....hours	.....hours	.....hours
B6. When you have a break within a shift how long does it last for?	.....mins	.....mins	.....mins	.....mins
B7. How many days do you spend on the Morning or Day shift before changing to a different shift or rest days?	.....days	.....days	.....days	.....days
B8. How long do you have off when you change from the Morning or Day shift to a different shift or rest days?	.....hours	.....hours	.....hours	.....hours
B9. How many days do you spend on the Afternoon shift before changing to a different shift or rest days?	.....days	.....days	.....days	.....days
B10. How long do you have off when you change from the Afternoon shift to a different shift or rest days?	.....hours	.....hours	.....hours	.....hours
B11. How many days do you spend on the Night shift before changing to a different shift or rest days?	.....days	.....days	.....days	.....days
B12. How long do you have off when you change from the Night shift to a different shift or rest days?	.....hours	.....hours	.....hours	.....hours
B13. How many successive days (of any type of shift) do you work before a break of at least one rest day?	.....days	.....days	.....days	.....days
B14. How many successive rest days do you have between blocks of shifts?	.....days	.....days	.....days	.....days
B15. How many days annual leave do you have? (including Public Holidays)	.....days	.....days	.....days	.....days
	<b>Scheduled</b>	<b>Normal</b>	<b>Earliest</b>	<b>Latest</b>

- B16. What time do your Morning or Day shifts start? .....am .....am .....am .....am
- B17. What time do your Morning or Day shifts finish? .....pm .....pm .....pm .....pm
- B18. What time do your Afternoon shifts start? .....pm .....pm .....pm .....pm
- B19. What time do your Afternoon shifts finish? .....pm .....pm .....pm .....pm
- B20. What time do your Night shifts start? .....pm .....pm .....pm .....pm
- B21. What time do your Night shifts finish? .....am .....am .....am .....am

**For the following questions, please circle the most appropriate alternative.**

- B22. To what extent do you have control over the specific shifts that you work?      None      Not very much      A fair amount      Quite a lot      Complete
- B23. To what extent do you have control over the specific start and finish times of the shifts that you work?      None      Not very much      A fair amount      Quite a lot      Complete
- B24. How much notice are you normally given of your shift schedule      Up to 1 day      2-6 days      7-14 days      14-28 days      More than 28 days

**Section C: Sleep, Fatigue and Performance.**

The following questions relate to your sleep, fatigue and performance. If a question doesn't apply to you because of the nature of your work schedule please mark it "N/A".

- |   | <b>“Normally”</b> | <b>Minimum</b> | <b>Maximum</b> |
|---|-------------------|----------------|----------------|
| <b>How much sleep do you get between:</b> |                   |                |                |
| C1. Successive Morning or Day shifts?     | .....hours        | .....hours     | .....hours     |
| C2. Successive Afternoon shifts?          | .....hours        | .....hours     | .....hours     |
| C3. Successive Night shifts?              | .....hours        | .....hours     | .....hours     |
| C4. Successive Rest days?                 | .....hours        | .....hours     | .....hours     |

**For the following questions, please circle the most appropriate alternative.**

- | <b>On average, how alert or sleepy do you feel on:</b>                         | <b>Very alert</b>    | <b>Alert</b>           | <b>Neither alert nor sleepy</b> | <b>Sleepy (but not fighting sleep)</b> | <b>Very sleepy (fighting sleep)</b> |   |   |   |   |
|--|----------------------|------------------------|---------------------------------|--|-------------------------------------|---|---|---|---|
| C5. The Morning or Day shift?  | 1                    | 2                      | 3                               | 4                                      | 5                                   | 6 | 7 | 8 | 9 |
| C6. The Afternoon shift?   | 1                    | 2                      | 3                               | 4                                      | 5                                   | 6 | 7 | 8 | 9 |
| C7. The Night shift?   | 1                    | 2                      | 3                               | 4                                      | 5                                   | 6 | 7 | 8 | 9 |
| <b>On average, how likely do you think you are to make a minor mistake on:</b> | <b>Very Unlikely</b> | <b>Fairly Unlikely</b> | <b>In Between</b>               | <b>Fairly Likely</b>                   | <b>Very Likely</b>                  |   |   |   |   |
| C8. The Morning or Day shift?  | 1                    | 2                      | 3                               | 4                                      | 5                                   | 6 | 7 | 8 | 9 |
| C9. The Afternoon shift?   | 1                    | 2                      | 3                               | 4                                      | 5                                   | 6 | 7 | 8 | 9 |
| C10. The Night shift?  | 1                    | 2                      | 3                               | 4                                      | 5                                   | 6 | 7 | 8 | 9 |
| <b>On average, how <u>confident</u> are you that you</b>                       | <b>Very</b>          | <b>Fairly</b>          | <b>In</b>                       | <b>Fairly</b>                          | <b>Very Un-</b>                     |   |   |   |   |

<b>can drive home safely after:</b>	<b>Confiden t</b>	<b>Confiden t</b>	<b>Between</b>	<b>Un- confident</b>	<b>confident</b>				
C11. The Morning or Day shift?	1	2	3	4	5	6	7	8	9
C12. The Afternoon shift?	1	2	3	4	5	6	7	8	9
C13. The Night shift ?	1	2	3	4	5	6	7	8	9

**Section D: General.**

	<b>Not at All</b>	<b>A Little</b>	<b>Some- what</b>	<b>Quite a Lot</b>	<b>Very Much</b>				
D1. How much does your work schedule interfere with your leisure activities, family life, and non-leisure activities (e.g. going to doctor, library, bank, hairdresser, etc.)?	1	2	3	4	5	6	7	8	9
D2. Do you do any other paid work that might exacerbate the work-hour related problems that you experience?									
	<b>Almost Never</b>	<b>Quite Seldom</b>	<b>In Between</b>	<b>Quite Often</b>	<b>Almost Always</b>				
D3. How often do you suffer from an upset stomach or indigestion?	1	2	3	4	5	6	7	8	9
D4. How often do you suffer from minor infectious diseases (e.g. colds or flu)?	1	2	3	4	5	6	7	8	9
D5. How often do you suffer from shortness of breath, aches and pains in your chest, or heart palpitations?	1	2	3	4	5	6	7	8	9
D6. How often do you suffer from aches and pains in your muscles and/or joints?	1	2	3	4	5	6	7	8	9
	<b>Definitel y Not</b>	<b>Probably Not</b>	<b>Maybe</b>	<b>Probably Yes</b>	<b>Definitel y Yes</b>				
D7. Overall, do the advantages of your work schedule outweigh the disadvantages?	1	2	3	4	5	6	7	8	9

2nd fold and tuck in

.....

Body Rhythms and Shiftwork Centre  
 Department of Psychology  
 University of Wales Swansea  
 FREEPOST SWC4017  
 SWANSEA  
**SA2 8ZZ**

1<sup>st</sup> fold.....

If you have any additional comments to make about your shift system, or about this survey, please write them here:

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