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Installation and Operation Manual

Type D MKV Straight Line Wiper

With

Series 1000 Control System

Issue 16

WARNING: A suitably qualified person should perform all installation and maintenance. All electrical wiring should be carried out in accordance with relevant regulations. Ensure all products are correctly earthed and all connections are made in accordance with the wiring diagram. Non-compliance may result in damage, malfunction or personal injury. Before commencing any installation or maintenance work, ensure that the electrical supply is disconnected.

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GENERAL INFORMATION AND SAFETY SUMMARY

As we will have no influence on the installation of complete windscreen wiper systems if installation is to be carried out by the customer, we are unable to accept liability for installation errors.

If you require any additional information or any special problems arise which the installation/maintenance instructions do not treat in sufficient detail please contact Customer Service at B. Hepworth and Co Ltd directly.

Safety Precautions

CAUTION! BEWARE OF INJURY!

BEFORE WORKING ON THE WIPER SYSTEM, OBSERVE THE FOLLOWING REMARKS WITHOUT FAIL!

Most wiper motors have a park setting, which permits them to default to the parked position if connected to the vehicle electrical system, even when the wiper is switched off. FOR THIS REASON, AT THIS POINT IN TIME, NEITHER MAY THE WIPER ARM BE MOUNTED, NOR MAY ANY PERSON HAVE HANDS, FINGERS, ETC ANYWHERE NEAR THE WIPER SYSTEM. Even small wiper motors can neither be braked nor stopped by hand.

NEVER REACH INTO THE AREA OF THE DRIVE BELT WHEN THE SYSTEM IS RUNNING!

When putting into service (i.e. when connecting the wiper motor to the vehicle electrical system, even if the wiper switch is in the off position), never leave any loose items such as screwdrivers in the area of the wiper system, as flying objects could lead to injury.

Please ensure the equipment is handled with care. Do not drop or bang the equipment down on a hard surface taking extra care around the area where the motor shaft is situated. Do not hammer the motor shaft when installing the equipment, as this will cause the motor gear plate to deform causing premature failure of the unit.

Wipers should be wrapped in protective material after installation to protect them from damage. Type of material depends on work done in the vicinity, for instance, if welding or grinding work needs to be done near the wipers then a fire resistant blanket should be used. If no welding or grinding work is required near the wipers then bubble is sufficient.

Introduction

The Windscreen Wiper system utilised is detailed on the following pages. The primary components that form the Windscreen Wiper System are the wiper case assembly, the wiper arm assemblies and the wiper blades.

TYPE D5 DESCRIPTION AND SPECIFICATION

The 'Type D MK V' is a Heavy Duty Straight Line Wiper with an electric motor mounted externally in a housing protected to IP67. The standard motor housing position is normally supplied on the left side of the unit (mounted above the window and viewed looking into the window).

All electric motors incorporate a worm reduction gearbox. Windings are to Class F insulation.

The DC motor option is suitable for single speed operation. Complies with the EMC Directive according to the following: EN 60945:2002

The AC 1-phase motor option is single speed operation. Complies with the EMC Directive according to the following: EN 60945:2002

The standard AC 3-phase motor option is for either 1 or 2 speed operation. Complies with the EMC Directive according to the following: EN 60945:2002

The variable frequency AC 3-phase motor option is for 3 speed operation and must be used with the 8000 Series Controller. Complies with the EMC Directive according to the following: EN 60945:2002

Motor Specifications

Motor	Type	Nominal Voltage	Full load current at 50/60 Hz	Fusing Value 50/60 Hz	Speed	Compass Safe Distance	Protection Rating
PM3M	Permanent Magnet	24V DC	4.5 A	6.0 A	1.4 m/s	2.4 m	IP54
PM3M (L)	Permanent Magnet	24V DC	4.5 A	6.0 A	0.7 m/s	2.4 m	IP54
PARV65	1 Phase Induction	115 V	2.3/2.6 A	2.5/3.15 A	1.4 m/s	0.5 m	IP20
PARV65L	1 Phase Induction	115 V	1.5/1.6 A	2.5/3.15 A	0.7 m/s	0.5 m	IP20
PARV64-T	1 Phase Induction	230 V	1.2/1.6 A	1.6/2.0 A	1.4 m/s	0.5 m	IP20
PARV64L	1 Phase Induction	230 V	0.75/0.95 A	1.0/1.6 A	0.7 m/s	0.5 m	IP20
PARV61	3 Phase Induction	115V AC	1.3/1.1 A	2.0/1.6 A	0.7/1.4 m/s	0.5 m	IP20
PARV62D+	3 Phase Induction	220V AC	0.6/0.6 A	1.0/1.0 A	0.7/1.4 m/s	0.5 m	IP20
PARV81	3 Phase Induction	115V AC	1.5 A	8000 Controller	0.7/1.1/1.4	0.5 m	IP20
PARV82	3 Phase Induction	220V AC	1.1 A	8000 Controller	0.7/1.1/1.4	0.5 m	IP20

For protection it is recommended that the wiper system have fuses fitted. The fuses will not blow in normal conditions, however if the wiper is jammed, then the fuses are designed to blow before the motor is damaged. Each wiper requires its own fuse. Fuse values shown above.

Compass safe distances, BSH (Germany) certified, have the values shown above. The distance quoted is the maximum figure for '*Magnet-Regelkompass*'.

Spray nozzles & water connections

A fresh water supply can be plumbed directly to the wiper into a 6mm overall diameter compression fitting. On stroke lengths below 1015mm (single wiper) 915mm (twin wiper), 1 nozzle is fitted, above 1015mm (single wiper) 915mm (twin wiper), 2 nozzles are fitted at ¼ stroke + 137mm from either end. The installer needs to provide pressurised water supply and the interconnecting plumbing. When the wash option is installed, the maximum pressure for the system is 8 bar or 118 PSI and the minimum pressure for adequate spray reach is 1 bar or 15 PSI. Example flow rates for a single spray jet are shown below.

Water System Pressure And Flow Rates

Pressure		Flow rate	
Bar	Psi	Litres/min	Gallons/min
1.0	15	0.95	0.20
1.5	22	1.20	0.25
2.0	29	1.40	0.30
3.0	44	1.75	0.40

De-icing Heaters

Optional de -icing heaters may be fitted inside the wiper case to ensure effective operation in cold conditions. As standard the heater cable is terminated inside the motor pod. Power consumption is according to the wiper stroke length, shown below.

Heater Power Ratings – Single Wipers

STROKE (mm)	STROKE (inch)	HEATER SIZE	WATTS (24VDC)	STROKE (mm)	STROKE (inch)	HEATER SIZE	WATTS (24VDC)
305 up to 430	12 up to 17	1	97	1500 up to 1800	59 up to 71	8	390 (186)
457 up to 735	18 up to 29	2	135	1930 up to 2100	76 up to 83	10	485 (150)
760 up to 1095	30 up to 42	4	211	2260	89	12	574 (123)
1118 up to 1450	43 up to 57	6	301 (238)				

Quoted Power is for nominal 115 or 230 Volts (bracketed values are for 24 Volts). For stroke lengths up to 1065 mm, power ratings are the same for all voltages.

Heater Power Ratings – Twin Wipers

OVERALL STROKE (mm)	STROKE (inch)	HEATER SIZE	WATTS (24VDC)	OVERALL STROKE (mm)	STROKE (inch)	HEATER SIZE	WATTS (24VDC)
585 up to 685	2 x 12 – 2 x 15	2	135	1855 up to 2165	2 x 37 – 2 x 43	10	485 (150)
735 up to 1042	2 x 16 – 2 x 21	4	211	2210 up to 2565	2 x 44 – 2 x 51	12	574 (123)
1091 up to 1445	2 x 22 – 2 x 29	6	301 (238)	2645 and above	2x 53 – 2 x 89	14	663 (106)
1495 up to 1805	2 x 30 – 2 x 36	8	390 (186)				

Quoted Power is for nominal 115 or 230 Volts (bracketed values are for 24 Volts). For stroke lengths up to 1041 mm, power ratings are the same for all voltages.

TYPE D5 WIPER INSTALLATION

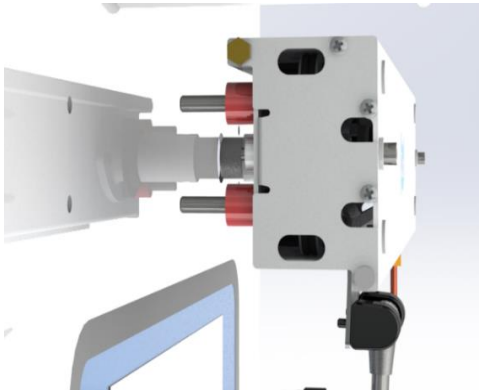


CAUTION: Ensure that the correct wiper, blade and arms are selected for each window.

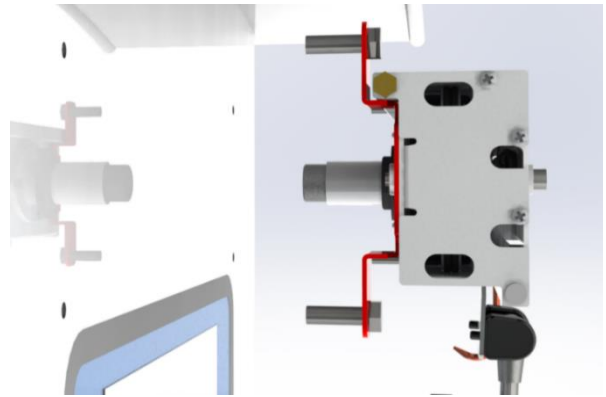
CAUTION: Before drilling, ensure that there are no obstructions / hazards at the chosen mounting position. The main frame should be mounted on a flat surface that will not bend or twist the casing, as this will prevent correct operation of the wiper.

CAUTION: Where more than one wiper unit is to be mounted close together, allow a distance of 70mm minimum between the wiper units.

Stud or Bracket Mounting



Stud Mounting



Bracket Mounting

1. Locate the self-adhesive template in the correct mounting position on the outside of bulkhead (stud mounting only).

NOTE: For motors mounted at the opposite end, the template should be inverted.

2. Drill the wiper 2 off fixing holes (11 mm diameter).
3. Detach the back casing from main unit. Hold the back casing in the required position and mark-out the remaining fixing holes, or calculate their position from the drawing i.e. stroke length plus 172 mm.
4. Drill the remaining wiper fixing & cable holes for the multi-way cable, ensuring that all holes are circular and carefully de-burred. Treat bare metal to prevent corrosion.
5. Fit the wiper case into position and secure with M10 bolts. Ensure that the bolts are sealed where they pass through the bulkhead.
6. Using the supplied M6 x 10mm screws, secure the wiper arm to the carriage plate.



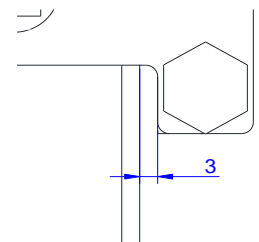
CAUTION: Ensure the correct length screws are used, as supplied. Longer screws will cause the carriage assembly to jam.

7. Bolt the front case to the back case using the 2 off M8 bolts fitted.



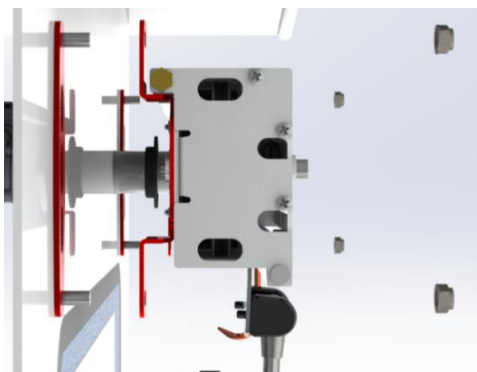
CAUTION: Do not overtighten the cover bolts. There should be 3mm clearance between arm mounting plate and inside of wiper case.

8. If necessary, slacken the screws on the wiper blade attachment clip, move the blade up or down for optimum position and then retighten screws.



9. Move the wiper arm/blade assembly over its full stroke and check that there is no restriction to movement (the motor will offer some resistance, but should not jam the wiper). Investigate and rectify any restrictions. If necessary adjust the wiper blade up or down on the arm to avoid the window frame.
10. Pass the cables through the bulkhead, leaving sufficient spare cable to allow the front assembly to be lifted away from the rear case during the maintenance period. Ensure the wiper is correctly earthed.
11. Ensure that wherever the cable passes through the bulkhead a suitable cable gland or seal is used to prevent water ingress and cable chaffing.

Universal Carrier & Bracket Mounting



Universal Carrier & Bracket Mounting

1. Carefully mark the position of the 2 (3 for longer wipers) off universal carrier plates.
2. Prepare the bulkhead and universal carrier plates carefully and weld the 2 (or 3 for longer wipers) universal mounting brackets into position. Treat bare metal to prevent corrosion.
3. Drill the remaining wiper fixing & cable holes for the multi-way cable, ensuring that all holes are circular and carefully de-burred. Treat bare metal to prevent corrosion.
4. Fit the wiper case into position on the Universal Carrier studs and secure with supplied M10 spring washers, M10 flat washers and M10 nuts.
5. Using the supplied M6 x 10mm screws, secure the wiper arm to the carriage plate.

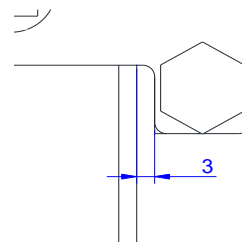


CAUTION: Ensure the correct length screws are used, as supplied. Longer screws will cause the carriage assembly to jam.

6. Bolt the front case to the back case using the 2 off M8 bolts fitted.



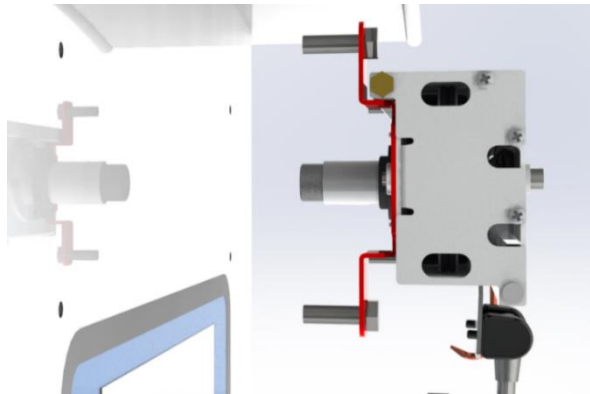
CAUTION: Do not overtighten the cover bolts. There should be 3mm clearance between arm mounting plate and inside of wiper case.



7. If necessary, slacken the screws on the wiper blade attachment clip, move the blade up or down for optimum position and then retighten screws.
8. Move the wiper arm/blade assembly over its full stroke and check that there is no restriction to movement (the motor will offer some resistance, but should not jam the wiper). Investigate and rectify any restrictions. If necessary adjust the wiper blade up or down on the arm to avoid the window frame.

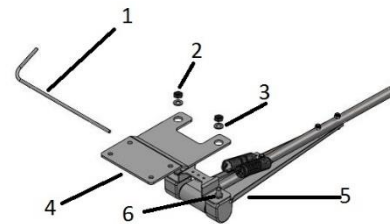
9. Pass the cables through the bulkhead, leaving sufficient spare cable to allow the front assembly to be lifted away from the rear case during the maintenance period. Ensure the wiper is correctly earthed.
10. Ensure that wherever the cable passes through the bulkhead a suitable cable gland or seal is used to prevent water ingress and cable chaffing.

Bracket Mounting – Quick Release Arms



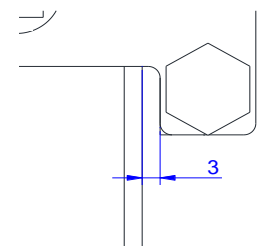
Bracket Mounting

1. Mark out and drill the 4 (6 for longer wiper units) off fixing holes (11 mm diameter).
2. Mark out and drill the cable holes for the multi-way cable, ensuring that all holes are circular and carefully de-burred. Treat bare metal to prevent corrosion.
3. The wiper unit should be supplied with the arm mounting plate (4) already fitted. If it is not fitted, remove 2 x ¼ UNF Thin Nuts (2) and 2 x M6 washers (3) from the pivot block threads and remove the wiper arm sub assembly (5) from the arm mounting plate (4). Fit the arm mounting plate (4) to the wiper unit before installing the wiper unit using the supplied M6 x 10mm screws.



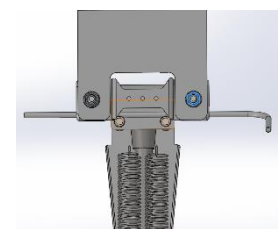
CAUTION: Ensure the correct length screws are used, as supplied. Longer screws will cause the carriage assembly to jam.

4. Fit the wiper blade to the wiper arm sub assembly (5), ensuring that the captive end of the wiper blade is at the top.
5. Bolt the front case to the back case using the 2 off M8 bolts fitted.



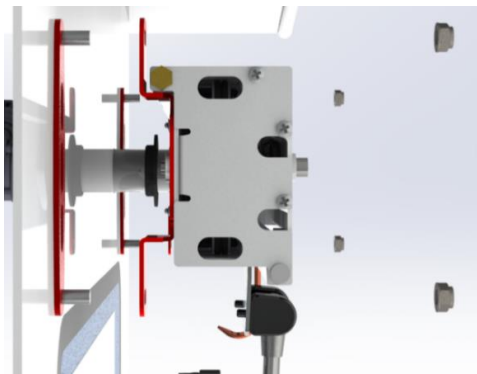
CAUTION: Do not overtighten the cover bolts. There should be 3mm clearance between arm mounting plate and inside of wiper case.

6. Fit the wiper case into position and secure with M10 bolts. Ensure that the bolts are sealed where they pass through the bulkhead.
7. Fit the wiper arm sub assembly (5) to the arm mounting plate (4) ensuring that the wiper arm sub assembly pivot block nuts (6) sit inside the holes in the arm mounting plate (4). Refit the 2 x M6 washers (3) and 2 x ¼ UNF Thin Nuts (2) to the pivot block threads and tighten.
8. Gently lift the wiper arm away from the window and remove the spring retaining pin (1). Keep safe for future use.



9. If necessary, slacken the screws on the wiper blade attachment clip, move the blade up or down for optimum position and then retighten screws.
10. Move the wiper arm/blade assembly over its full stroke and check that there is no restriction to movement (the motor will offer some resistance, but should not jam the wiper). Investigate and rectify any restrictions. If necessary adjust the wiper blade up or down on the arm to avoid the window frame.
11. Pass the cables through the bulkhead, leaving sufficient spare cable to allow the front assembly to be lifted away from the rear case during the maintenance period. Ensure the wiper is correctly earthed.
12. Ensure that wherever the cable passes through the bulkhead a suitable cable gland or seal is used to prevent water ingress and cable chaffing.

Universal Carrier & Bracket Mounting – Quick Release Arms



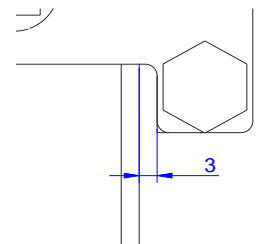
Universal Carrier & Bracket Mounting

1. Carefully mark the position of the 2 (3 for longer wipers) off universal carrier plates.
2. Prepare the bulkhead and universal carrier plates carefully and weld the 2 (or 3 for longer wipers) universal mounting brackets into position. Treat bare metal to prevent corrosion.
3. Drill the remaining wiper fixing & cable holes for the multi-way cable, ensuring that all holes are circular and carefully de-burred. Treat bare metal to prevent corrosion.
4. The wiper unit should be supplied with the arm mounting plate (4) already fitted. If it is not fitted, remove 2 x ¼ UNF Thin Nuts (2) and 2 x M6 washers (3) from the pivot block threads and remove the wiper arm sub assembly (5) from the arm mounting plate (4). Fit the arm mounting plate (4) to the wiper unit before installing the wiper unit using the supplied M6 x 10mm screws.



CAUTION: Ensure the correct length screws are used, as supplied. Longer screws will cause the carriage assembly to jam.

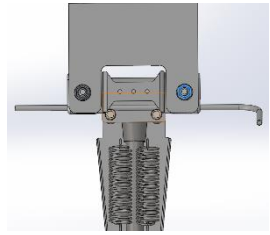
5. Fit the wiper blade to the wiper arm sub assembly (5), ensuring that the captive end of the wiper blade is at the top.
6. Bolt the front case to the back case using the 2 off M8 bolts fitted.

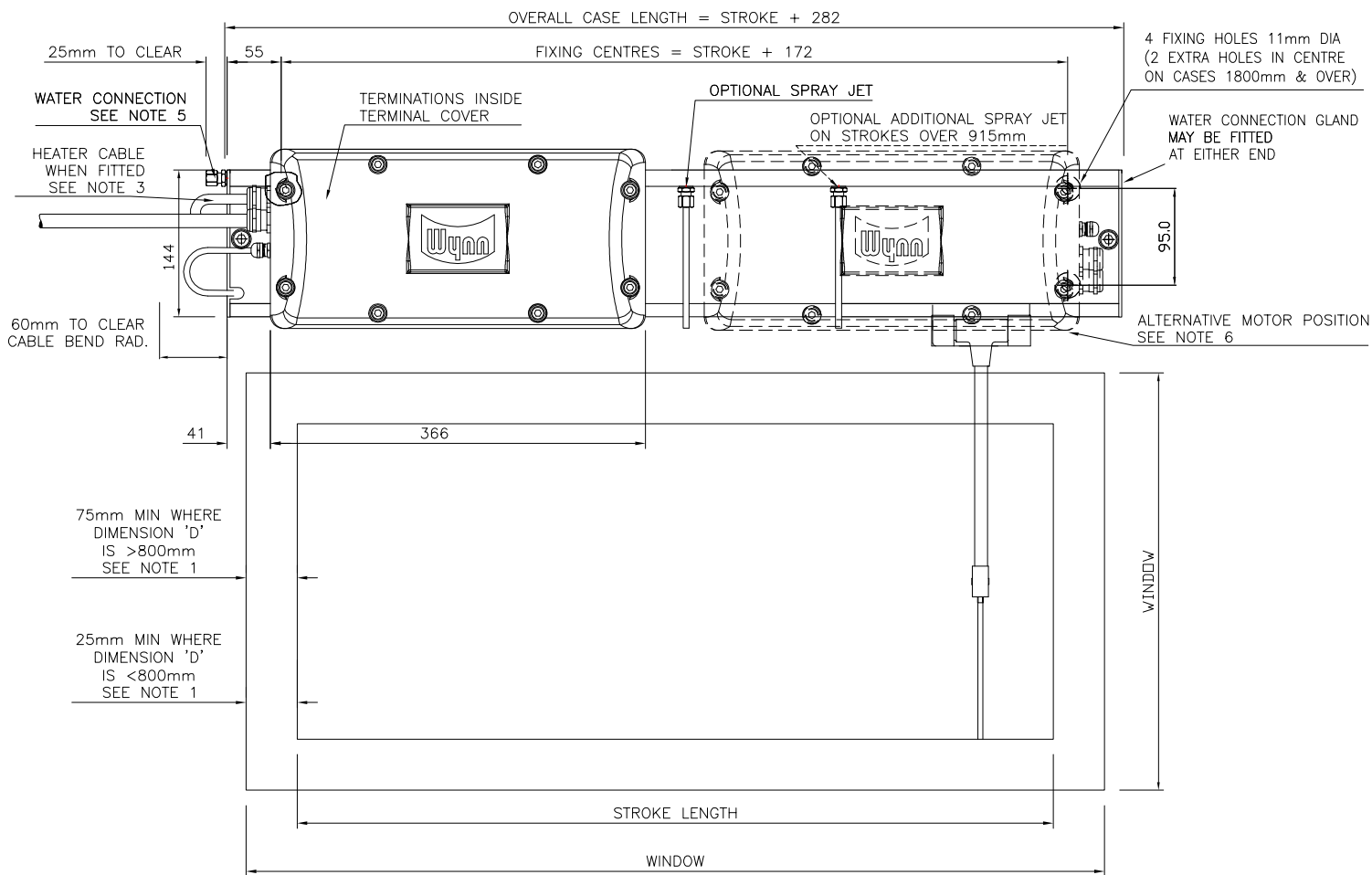


CAUTION: Do not overtighten the cover bolts. There should be 3mm clearance between arm mounting plate and inside of wiper case.

7. Fit the wiper case into position on the Universal Carrier studs and secure with supplied M10 spring washers, M10 flat washers and M10 nuts.

8. Fit the wiper arm sub assembly (5) to the arm mounting plate (4) ensuring that the wiper arm sub assembly pivot block nuts (6) sit inside the holes in the arm mounting plate (4). Refit the 2 x M6 washers (3) and 2 x ¼ UNF Thin Nuts (2) to the pivot block threads and tighten.
9. Gently lift the wiper arm away from the window and remove the spring retaining pin (1). Keep safe for future use.
10. If necessary, slacken the screws on the wiper blade attachment clip, move the blade up or down for optimum position and then retighten screws.
11. Move the wiper arm/blade assembly over its full stroke and check that there is no restriction to movement (the motor will offer some resistance, but should not jam the wiper). Investigate and rectify any restrictions. If necessary adjust the wiper blade up or down on the arm to avoid the window frame.
12. Pass the cables through the bulkhead, leaving sufficient spare cable to allow the front assembly to be lifted away from the rear case during the maintenance period. Ensure the wiper is correctly earthed.
13. Ensure that wherever the cable passes through the bulkhead a suitable cable gland or seal is used to prevent water ingress and cable chaffing.



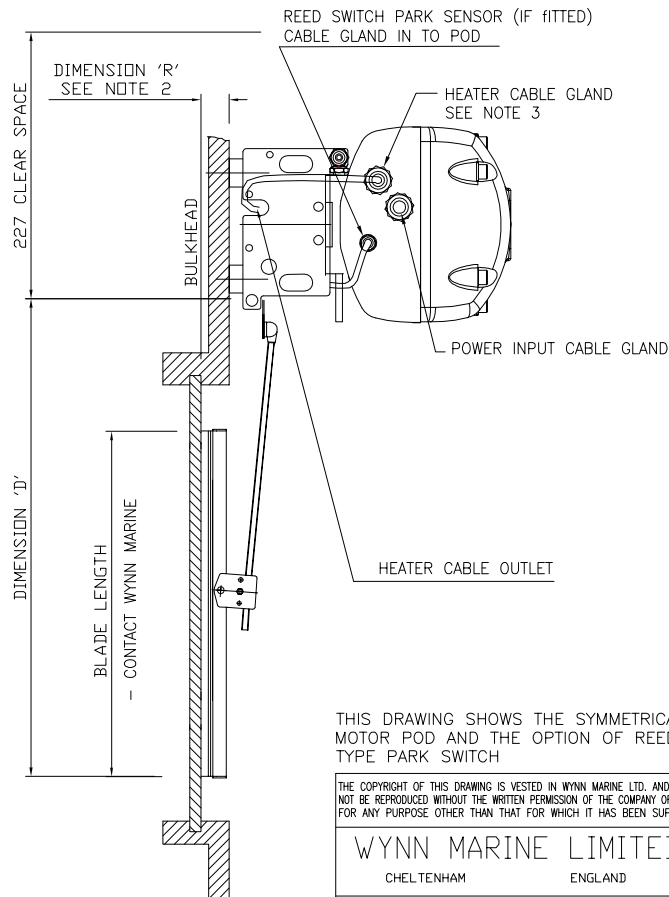


STANDARD ASSEMBLY VIEWED FROM OUTSIDE THE WINDOW

NOTES

- THESE MINIMUM DIMENSIONS ARE LIMITED BY THE CORNER RADII OF THE WINDOW.
- THE BLADE ARM MAY BE CRANKED WHERE DIMENSION 'R' IS GREATER THAN 75mm.
- HEATER WHEN FITTED WILL BE WIRED INTO THE MOTOR TERMINAL BLOCK.
- CUSTOMER TO ROUTE CABLING FROM MOTOR HOUSING AS REQUIRED.
- CUSTOMER TO PIPE WATER DIRECTLY ONTO WATER SPRAY COUPLING.
- MOTOR POSITION SHOWN AS STANDARD, OPPOSITE ORIENTATION AVAILABLE UPON REQUEST.
- WHEN FITTED THE PARK SWITCH IS WIRED TO TERMINALS ON THE MOTOR TERMINAL BLOCK. PARKING IS AT THE MOTOR END.

ALL DIMENSIONS IN MM FOR REFERENCE ONLY



THIS DRAWING SHOWS THE SYMMETRICAL MOTOR POD AND THE OPTION OF REED TYPE PARK SWITCH

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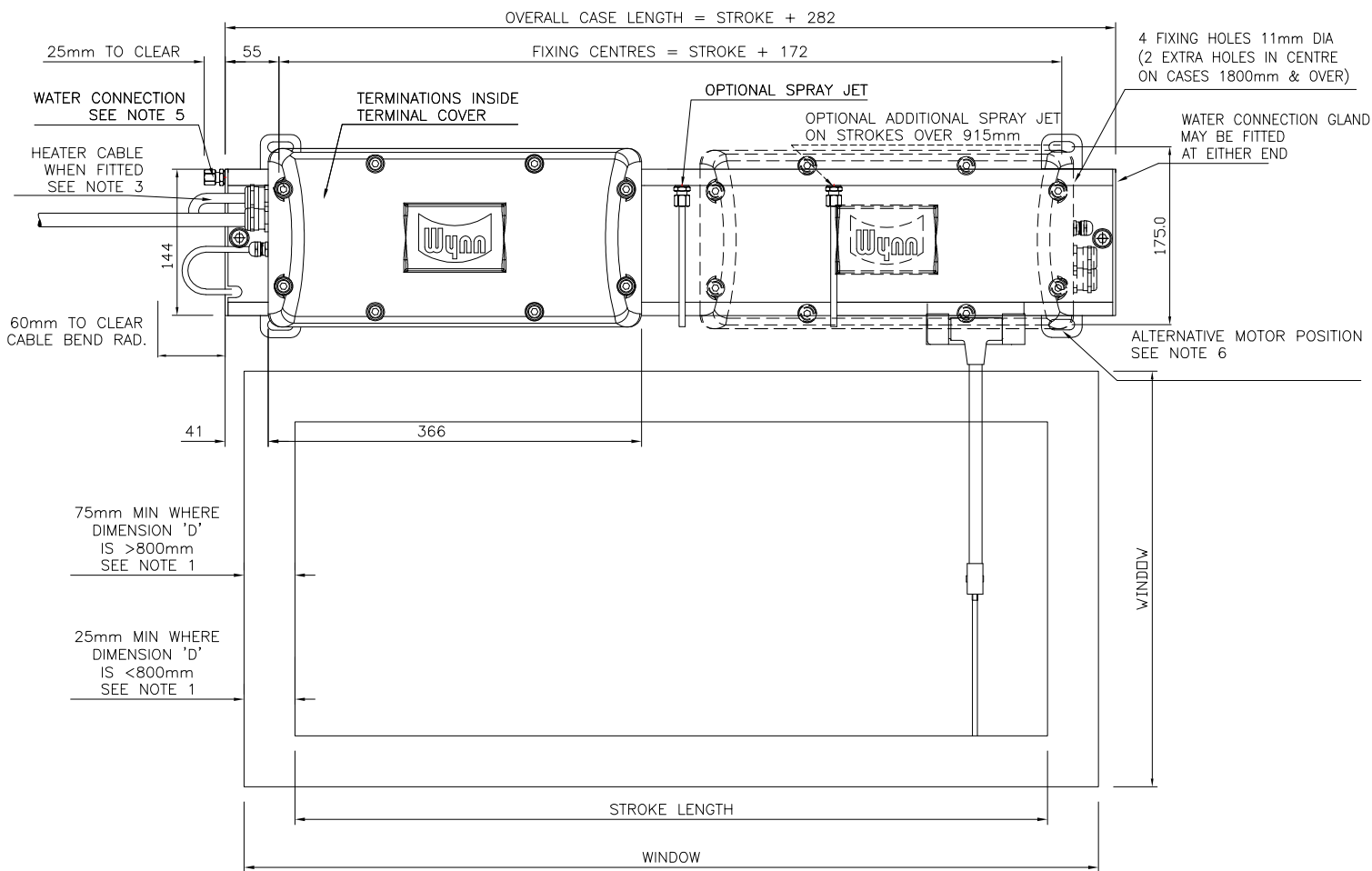
WYNN MARINE LIMITED
CHELTENHAM ENGLAND

TITLE:- SINGLE TYPE D MK 5
INSTALLATION DRG.

DRAWING No. 4030-003-SYM

CAD FILENAME+DIRECTORY	M:\DRAW\4030\4030-003-SYM						
3rd ANGLE PRO.						6	18.05.18
						5	23.01.14
						4	12.06.13
						3	11.09.09
						2	224 11.10.07
						1	192 14.05.07
MAT'L:-	ISS.	DIN	DATE	ISS.	DIN	DATE	
FINISH:-	SCALE:-	NTS	DRAWN:-	DD	CHKD:-	CHANGED:-	

TOLERANCES UNLESS OTHERWISE STATED
DECIMAL DIMS. TO 2 PLACES ± 0.1mm
DECIMAL DIMS. TO 1 PLACE ± 0.25mm
NO DECIMAL PLACES ± 0.5mm
ANGLES ± 1°

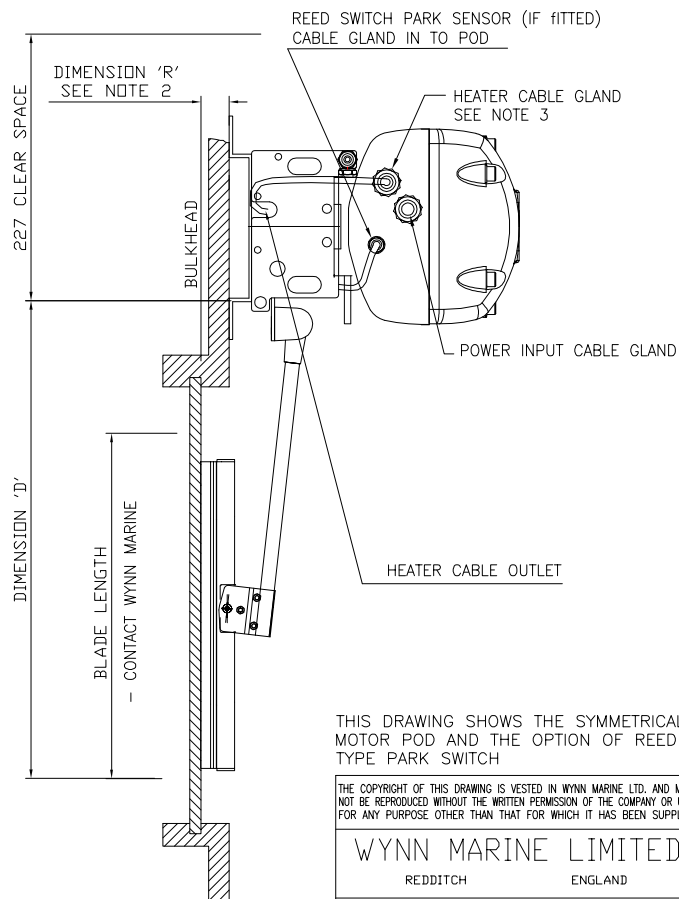


STANDARD ASSEMBLY VIEWED FROM OUTSIDE THE WINDOW

NOTES

- 1 THESE MINIMUM DIMENSIONS ARE LIMITED BY THE CORNER RADII OF THE WINDOW.
- 2 THE BLADE ARM MAY BE CRANKED WHERE DIMENSION 'R' IS GREATER THAN 75mm.
- 3 HEATER WHEN FITTED WILL BE WIRED INTO THE MOTOR TERMINAL BLOCK.
- 4 CUSTOMER TO ROUTE CABLING FROM MOTOR HOUSING AS REQUIRED.
- 5 CUSTOMER TO PIPE WATER DIRECTLY ONTO WATER SPRAY COUPLING. WATER CONNECTION CAN BE AT EITHER END.
- 6 MOTOR POSITION SHOWN AS STANDARD, OPPOSITE ORIENTATION AVAILABLE UPON REQUEST.
- 7 WHEN FITTED THE PARK SWITCH IS WIRED TO TERMINALS ON THE MOTOR TERMINAL BLOCK. PARKING IS AT THE MOTOR END.

ALL DIMENSIONS IN MM FOR REFERENCE ONLY



THIS DRAWING SHOWS THE SYMMETRICAL MOTOR POD AND THE OPTION OF REED TYPE PARK SWITCH

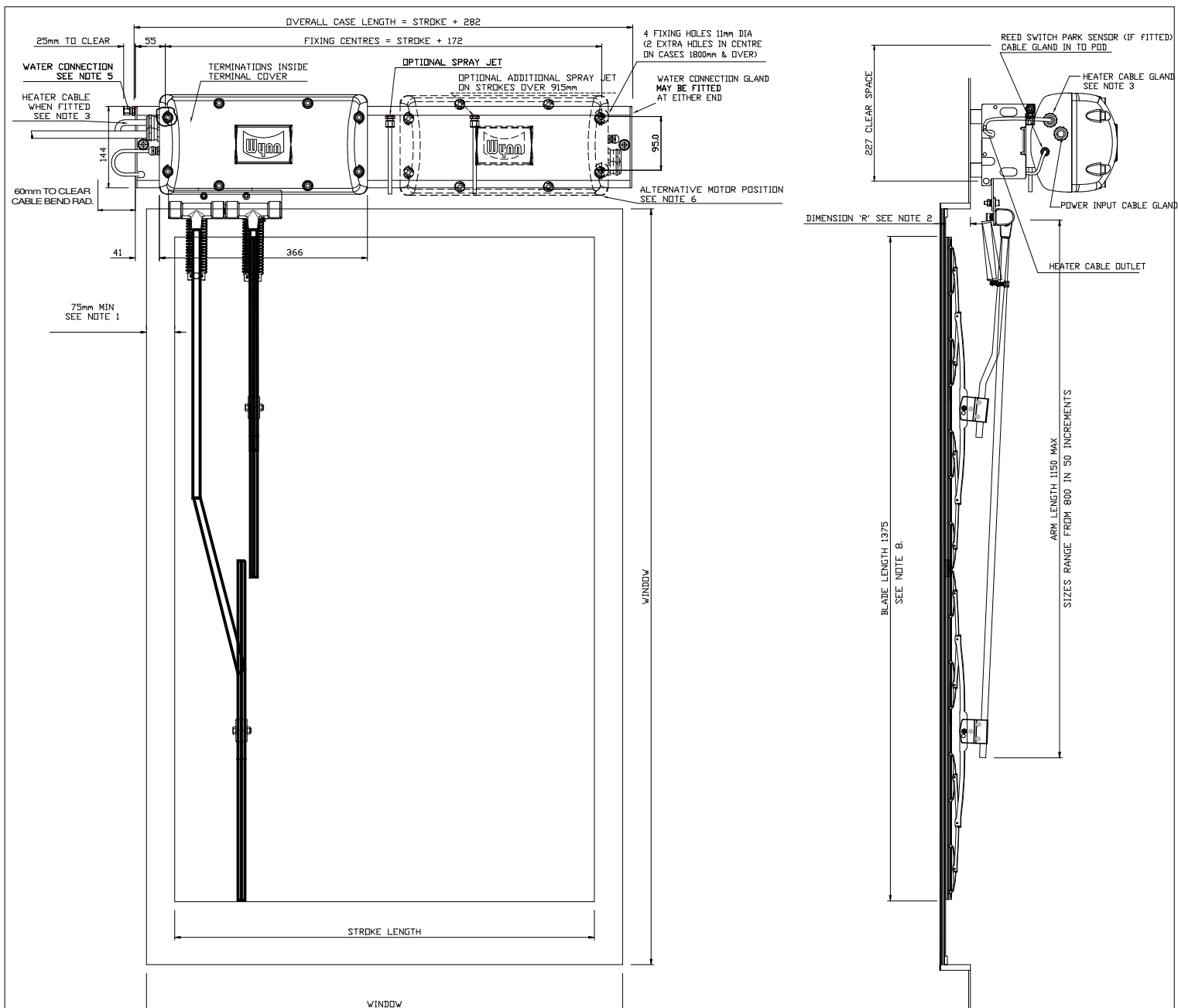
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WYNN MARINE LIMITED
REDDITCH ENGLAND

TITLE:- SINGLE TYPE D MK 5
INSTALLATION DRG.

DRAWING No. 4030-003-UNI

CAD FILENAME+DIRECTORY	M:\DRAW\4030\4030-003-UNI							
3rd ANGLE PRO.								
TOLERANCES UNLESS OTHERWISE STATED DECIMAL DIMS. TO 2 PLACES ± 0.1mm NO DECIMAL PLACES ± 0.5mm ANGLES ± 1°								
						2		18.05.18
						1		21.07.14
MAT'L:-	ISS.	DIN	DATE	ISS.	DIN	DATE	ISS.	DIN
FINISH:-	SCALE:-	NTS	DRAWN:-	DD	CHKD:-	CHANGED:-		



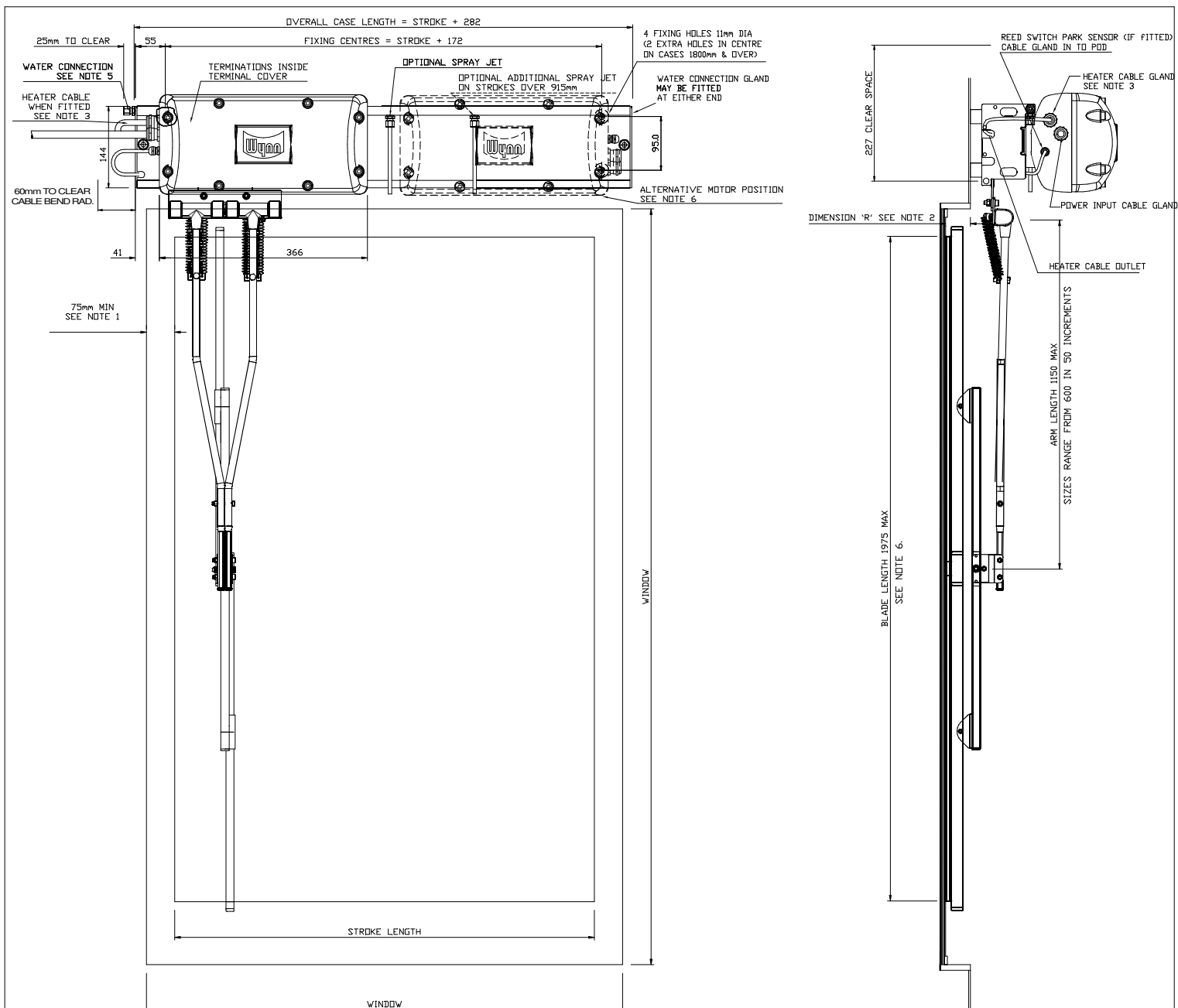
NOTES

1. THESE MINIMUM DIMENSIONS ARE LIMITED BY THE SIZE OF THE CORNER RADII ON THE WINDOW.
2. THE BLADE ARM MAY BE CRANKED WHERE DIMENSION "R" IS GREATER THAN 75mm.
3. HEATER WHEN FITTED WILL BE WIRED INTO THE MOTOR TERMINAL BLOCK.
4. CUSTOMER TO ROUTE CABLING FROM MOTOR HOUSING AS REQUIRED.
5. CUSTOMER TO PIPE WATER DIRECTLY ONTO WATER SPRAY COUPLING.
6. MOTOR POSITION SHOWN AS STANDARD, OPPOSITE ORIENTATION AVAILABLE UPON REQUEST.
7. WHEN FITTED THE PARK SWITCH IS WIRED TO TERMINALS ON THE MOTOR TERMINAL BLOCK. PARKING IS AT THE MOTOR END.
8. WIPER BLADE LENGTH 700 EACH, OVERALL 1375.
9. SEE MANUAL HEATER POWER RATINGS TABLE FOR STROKE OPTIONS AND HEATER DETAILS.

ALL DIMENSIONS IN MM FOR REFERENCE ONLY

CAD FILENAME+DIRECTORY		M:\DRAW\4030\4030-003-SYM Dbl Arm									
3rd ANGLE PRO.											
TOLERANCES UNLESS OTHERWISE STATED											
DECIMAL DIMS TO 2 PLACES ± 0.1mm											
DECIMAL DIMS TO 1 PLACE ± 0.25mm											
AND DECIMAL PLACES ± 0.5mm											
ANGLES ± 1°											
MATERIAL:-		ISS.	DIN	DATE	ISS.	DIN	DATE	ISS.	DIN	DATE	28.10.19
FINISH:-		SCALE:-	NTS	DRAWN:-	DD	CHKD:-		CHANGED:-			

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WYNN MARINE LIMITED	
REDDITCH	ENGLAND
TITLE:- SINGLE TYPE D MK5	
INSTALLATION DRG.	
DRAWING No. 4030-003-SYM Dbl Arm	



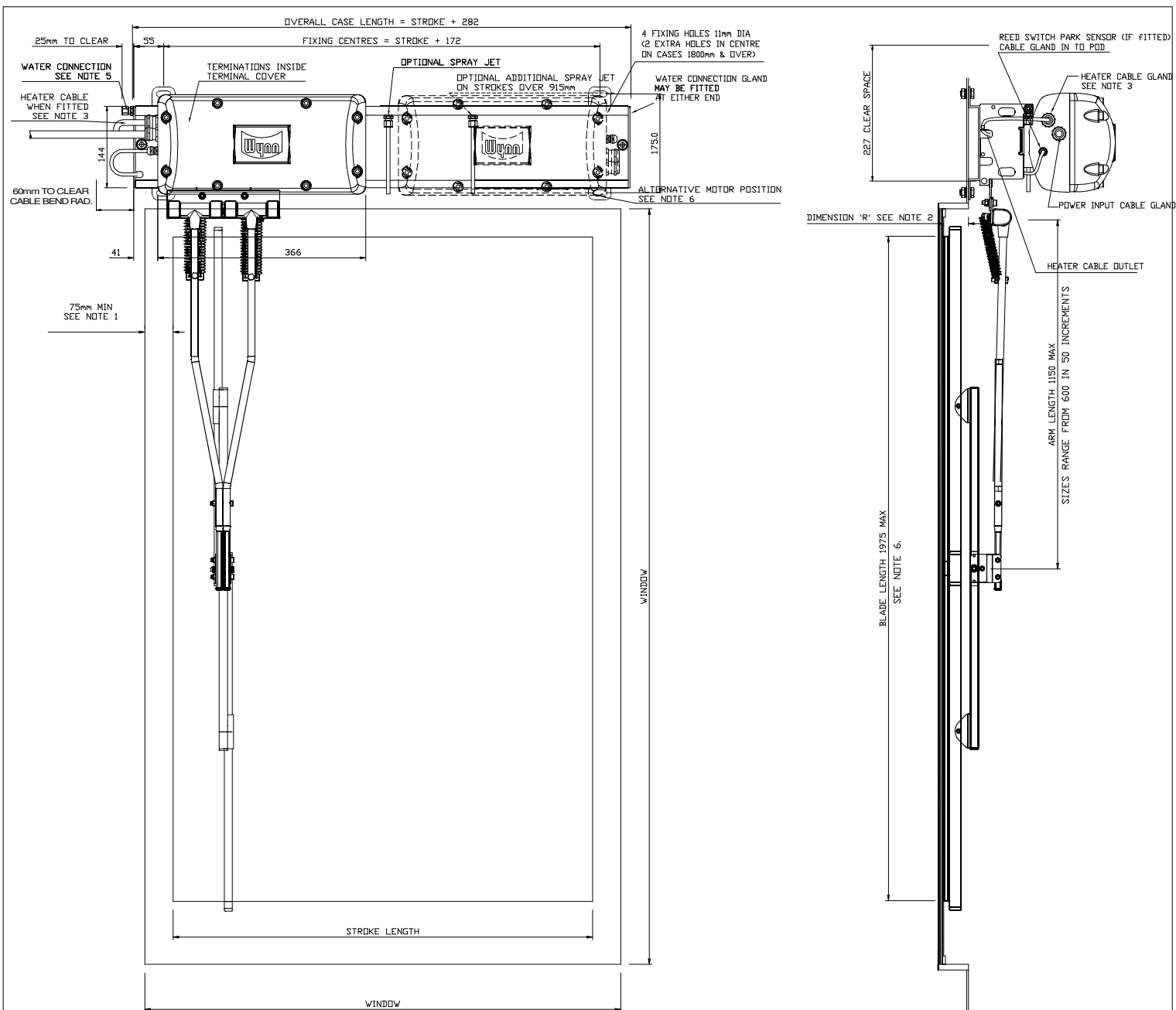
NOTES

1. THESE MINIMUM DIMENSIONS ARE LIMITED BY THE SIZE OF THE CORNER RADII ON THE WINDOW.
2. THE BLADE ARM MAY BE CRANKED WHERE DIMENSION "R" IS GREATER THAN 75mm.
3. HEATER WHEN FITTED WILL BE WIRED INTO THE MOTOR TERMINAL BLOCK.
4. CUSTOMER TO ROUTE CABLING FROM MOTOR HOUSING AS REQUIRED.
5. CUSTOMER TO PIPE WATER DIRECTLY ONTO WATER SPRAY COUPLING.
6. MOTOR POSITION SHOWN AS STANDARD, OPPOSITE ORIENTATION AVAILABLE UPON REQUEST.
7. WHEN FITTED THE PARK SWITCH IS WIRED TO TERMINALS ON THE MOTOR TERMINAL BLOCK. PARKING IS AT THE MOTOR END.
8. DUAL WIPER BLADE LENGTHS RANGE FROM 1175 TO 1975 IN 100 INCREMENTS.
9. SEE MANUAL HEATER POWER RATINGS TABLE FOR STROKE OPTIONS AND HEATER DETAILS.

ALL DIMENSIONS IN MM FOR REFERENCE ONLY

CAD FILENAME+DIRECTORY	M:\DRAW\4030\4030-003-SYM HD Arm									
3rd ANGLE PRO.										
TOLERANCES UNLESS OTHERWISE STATED										
DECIMAL DIMS TO 2 PLACES ± 0.1mm										
DECIMAL DIMS TO 1 PLACE ± 0.25mm										
NO DECIMAL PLACES ± 0.5mm										
ANGLES ± 1°										
MAT'L:-	ISS.	DIN	DATE	ISS.	DIN	DATE	ISS.	DIN	DATE	25.09.19
FINISH:-	SCALE:-	NTS	DRAWN:-	DD	CHKD:-		CHANGED:-			

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WYNN MARINE LIMITED	
REDDITCH	ENGLAND
TITLE:- SINGLE TYPE D MK5	
INSTALLATION DRG.	
DRAWING No. 4030-003-SYM HD Arm	



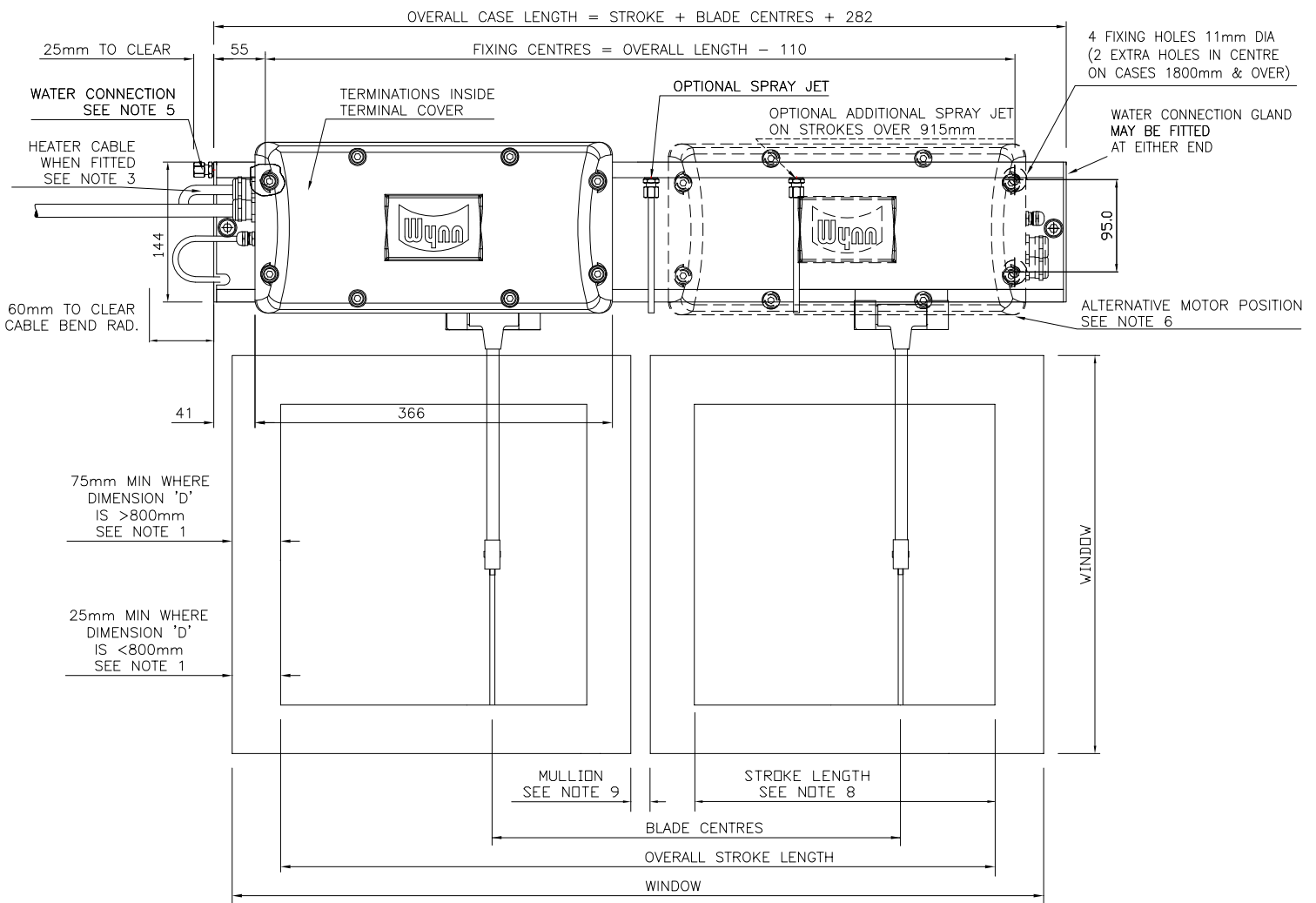
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WYNN MARINE LIMITED	REDDITCH ENGLAND
TITLE:- SINGLE TYPE D MK5 INSTALLATION DRG.	
DRAWING No. 4030-003-UNI HD Arm	

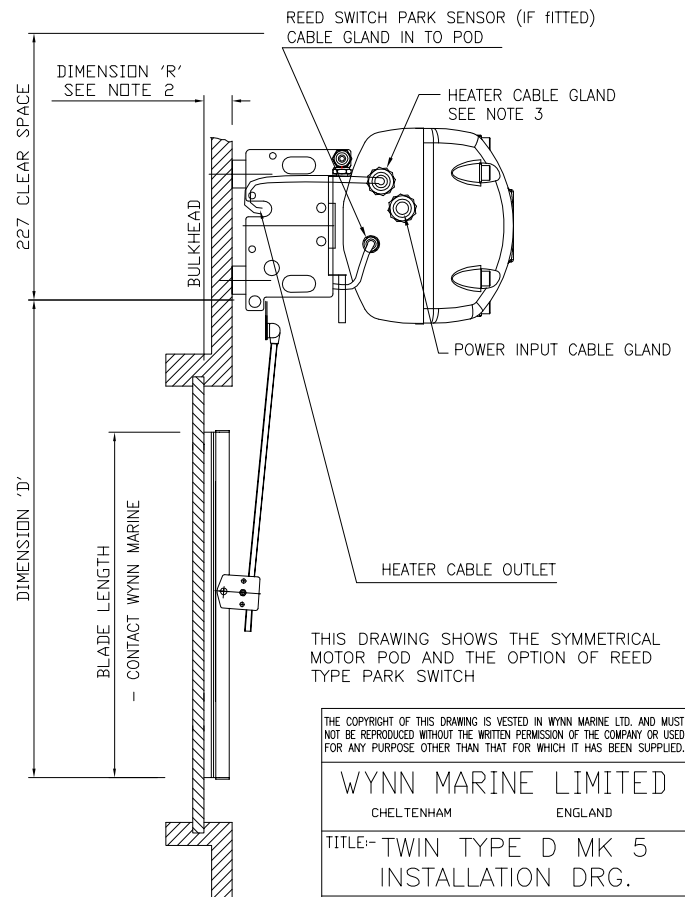


NOTES

STANDARD ASSEMBLY VIEWED FROM OUTSIDE THE WINDOW

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- WHEN FITTED THE PARK SWITCH IS WIRED TO TERMINALS ON THE MOTOR TERMINAL BLOCK. PARKING IS AT THE MOTOR END.
- WHEN TWIN WIPERS ARE USED ON SINGLE WINDOWS THE WIPER BLADES SHOULD BE SET TO OVERLAP BY 25mm.
- WHEN TWIN WIPERS ARE USED ON ADJACENT WINDOWS, BLADE CENTRES SHOULD BE INCREASED BY THE WIDTH OF THE MULLION PLUS TWICE THE MINIMUM WINDOW EDGE CLEARANCE - SEE NOTE 1.

ALL DIMENSIONS IN MM FOR REFERENCE ONLY

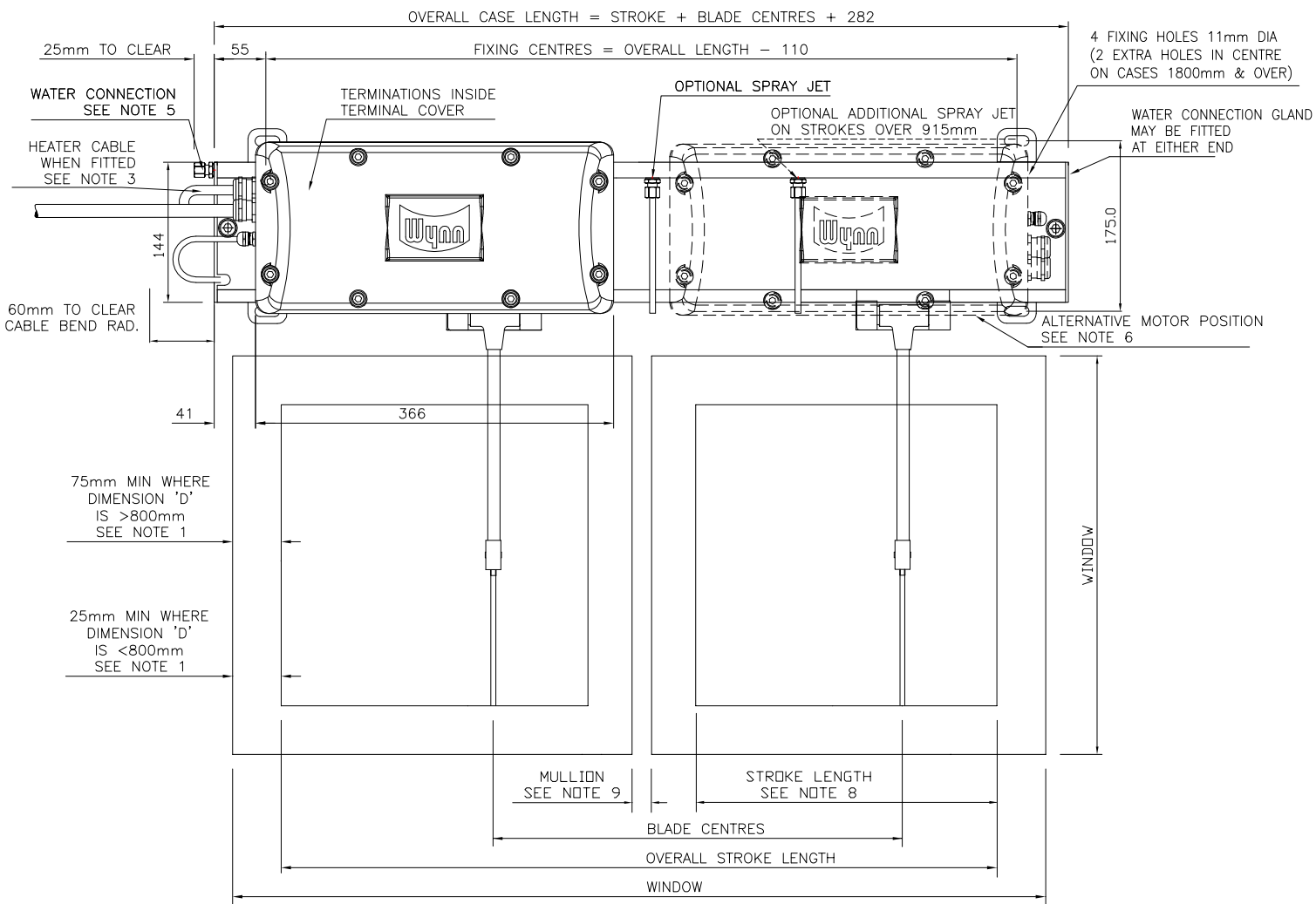


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						5	23.01.14
						4	12.06.13
						3	11.09.09
						2	11.10.07
						1	15.05.07
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WYNN MARINE LIMITED
CHELTENHAM ENGLAND

TITLE:- TWIN TYPE D MK 5
INSTALLATION DRG.
DRAWING No. 4030-004-SYM

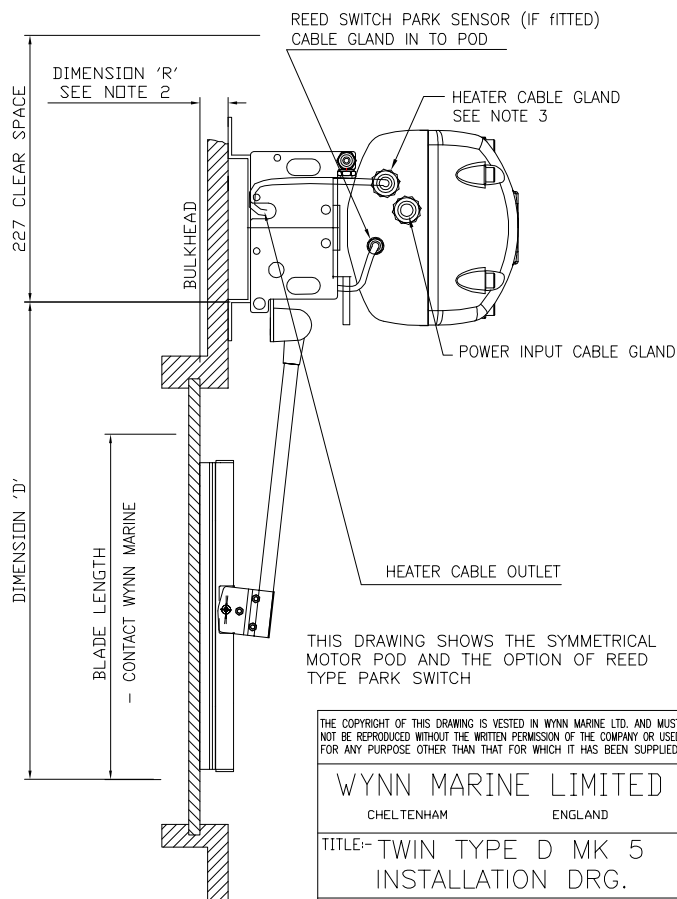


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- THE BLADE ARM MAY BE CRANKED WHERE DIMENSION 'R' IS GREATER THAN 75mm.
- HEATER WHEN FITTED WILL BE WIRED INTO THE MOTOR TERMINAL BLOCK.
- CUSTOMER TO ROUTE CABLING FROM MOTOR HOUSING AS REQUIRED.
- CUSTOMER TO PIPE WATER DIRECTLY ON TO WATER SPRAY COUPLING. WATER CONNECTION CAN BE AT EITHER END.
- MOTOR POSITION SHOWN AS STANDARD, OPPOSITE ORIENTATION AVAILABLE UPON REQUEST.
- WHEN FITTED THE PARK SWITCH IS WIRED TO TERMINALS ON THE MOTOR TERMINAL BLOCK. PARKING IS AT THE MOTOR END.
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CAD FILENAME+DIRECTORY	M:\DRAW\4030\4030-004-UNI							
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TOLERANCES UNLESS OTHERWISE STATED								
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					1	21.07.14		

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WYNN MARINE LIMITED	
CHEL TENHAM	ENGLAND
TITLE:- TWIN TYPE D MK 5	
INSTALLATION DRG.	
DRAWING No. 4030-004-UNI	

GENERAL FAULT FINDING GUIDE

NOTE: This fault finding guide assumes a reasonable level of technical ability and should be carried out by a suitably qualified person.

Problems: Control panel does not operate wiper.

Possible Cause	Solution
No Power.	Check power supply is on and working.
Power not reaching motor	Check ship's incoming supply fuses or circuit breakers. Check for wiring fault, broken wire or loose terminal. If possible confirm (with voltmeter) power is present at motor input and output terminals of control module.
Connections to motor incorrect.	Check wiring according to the appropriate electrical installation drawing.
Ship's voltage too low.	Check voltage as close to the motor as possible, with motor running. See relevant tables for acceptable values.
Motor Thermal Cut Out tripped. Single Phase AC motors only.	The 1 Ø AC motors have a thermal cut out embedded into the stator winding. If the motor gets too hot the thermal cut out disconnects the supply to the motor. Switch off and allow the motor to cool down. About 20 minutes later the cut out will reset allowing normal operation.
Motor brushes or commutator worn (DC motor only)	Check motor commutator and brushes
Motor burned out.	This should not be possible - could happen by incorrect voltage of motor, or a motor fault. The motor needs a reasonable amount of free space to provide sufficient cooling airflow – check. The motor should be protected by fuses, check type and rating.
Wiper motor not fully engaged on coupling.	Slacken pinch bolt, move motor and/or wiper arm to align coupling and push motor into engagement with coupling. Retighten pinch bolt. Make sure that the rubber coupling is fitted
Carriage motion jammed.	It should be possible by pushing the blade arm to move the mechanism over the stroke length. Remove cover and check for obstructions. Check the Blade Arm Screws.
Drive pulley turning but belt slipping.	Excessive friction - Check carriage rollers and motor drive coupling. Replace as required. Idle pulley springs broken or missing. Replace.
Drive belt broken or damaged.	Inspect belt for slip or burn damage. Belt at end of life. Replace.
Idle pulley jammed.	Damaged by impact, or bearing system failed. Replace assembly.
Corrosion.	If corroded, check for water ingress through seals and tightness of connections, Replace wiper unit if necessary

Problem: Wiper runs but at wrong speed

Possible Cause

Solution

Ship's voltage incorrect.	Check voltage as near as possible to the motor, with motor running.
Motor brushes worn (DC Only)	Inspect brushes and replace as necessary.
High / Low speed wiring incorrect (3 Phase 2 Speed models only)	Check wiring complies with appropriate drawing.
One phase missing (3 Phase 2 Speed models only)	Check controller. Check ships fuses.

Problem: Wiper runs but is noisy

Possible Cause

Solution

Wiper arm is obstructed by: - Window frame, spray jets, etc.	If necessary gently bend arms or spray jets out of path of wiper arm.
Incorrect arm attachment screws.	These must not be longer than the 10mm screws provided by Wynn
Vibration of wiper unit	Check the front cover fixing screws are secure.
Arm attachment plate fouling on wiper case	Attachment screws not fully tightened - check. Blade arm or bracket bent out of place - check.

Problem: Wiper does not clean the screen properly.

Possible Cause

Solutions

Blade not in contact with screen.	Blade or arm bent - inspect and replace. Arm pivots seized due to corrosion - replace. Heaters ineffective allowing ice build up.
Weak springs on blade arm.	Stronger springs may be required. Contact Agent/Distributor
Broken springs on blade arm.	Investigate reason of failure and replace. Springs are good down to -40°C.
Blade rubber missing or damaged.	Maintenance item. Replace as required.

Problem: Wiper does not park correctly

Possible Cause

Solution

Park Sensor failed.	Check reed sensor action, will need tester (meter).
Park Sensor Actuator missing.	Check magnet/spacer arrangement on carriage.

Problem: If fitted, heater does not become warm when switched on

Possible Cause	Solutions
Fuse blown or circuit breaker tripped (if fitted).	Check for short-circuited heater, will need tester (meter). Check for wiring damage or loose wires. Check connections are good.
Heater failed.	Check for continuity, will need tester (meter).
Earth leakage circuit breaker trips.	It is common for earth leakage to rise if a heater has not been used for a while - if possible allow heater the warm up so to dry out. The heater's water seal or cable may be damaged allowing ingress of water - check and replace.
No power.	Check Controller.

Problem: If fitted, little or no washer water comes out when button pressed.

Possible Cause	Solution
Pump or supply pressure too low.	Check Ship's water supply, or pump for output pressure.
On reservoir systems, empty.	Check - refill.
Water control valve faulty or not operating.	Check solenoid valve continuity. Replace if open circuit.
Supply lines or jets blocked.	Try air purge, if available. Dismantle and flush pipes.
Water frozen.	Switch on heaters.

TYPE D5 WIPER MAINTENANCE

Wynn products have been proven over many years to perform well under the harshest condition of use. No specialist tools are supplied. To maintain their performance the following schedule is recommended:

TOOLS REQUIRED:

- I. TORQUE WRENCH WITH 6MM ALLEN KEY SOCKET
- II. TORQUE WRENCH WITH 17MM SPANNER
- III. TORQUE WRENCH WITH 22MM SPANNER
- IV. TORQUE WRENCH WITH 24MM SPANNER
- V. 4MM ALLEN KEY
- VI. 5MM ALLEN KEY
- VII. 6MM ALLEN KEY
- VIII. 6MM SOCKET
- IX. 8MM SPANNER
- X. 10MM SPANNER
- XI. 10MM SOCKET
- XII. 11MM SPANNER
- XIII. 14MM SPANNER
- XIV. 3MM FLAT BLADE SCREWDRIVER
- XV. NO2 CROSS POINT SCREWDRIVER

Every 6 Months

DC motors only

1. Inspect the motor brushes. Remove motor end cover. Prevent brushes from running down to less than 6mm height in service. Brushes can be lifted out of their holder after lifting off the springs. Replace brushes back into same holder and in the same orientation. Ensure that the brush 'pig tails' is free and that the springs are correctly replaced.
2. When replacing brushes, carefully clear out any residual carbon dust from the motor.



WARNING: DO NOT INHALE THE CARBON DUST.

3. Inspect the motor commutator – it should still be bright. If it is blackened the motor should be replaced or serviced. This can be done with light cleaning with 'flour' paper, but not 'emery' paper.

Every 12 Months

1. Check condition of the Articulated/Rigid Wiper Blade. Replace if necessary.
2. Check the motor pod case bolts are tightened to a torque of 12-14NM.
3. Check the cable entry gland nuts are tightened to the following torque:

Motor	-	5NM
Heater	-	4.2NM
Sensor	-	4.2NM

4. Check Heaters if fitted. If these have not been used for some time, then leave them on for approximately 2 hours.

NOTE: If not used for long periods, some mineral insulated heaters will take up moisture and begin to show current leakage to ground. By running them for the stated time this process can be reversed and the insulation returned to near infinity values. When dry, insulation resistance is > 100 M ohm at 500V.

5. Check the drive belt for deterioration. Replace if necessary.
6. Check carriage is smooth and all guide rollers are free to rotate. Inspect 'tyres' on the guide rollers for splitting / perishing. Replace complete roller if necessary. Special spanner is supplied with set of 8 guide rollers.



Caution: Guide rollers have an integral dry bearing and MUST NOT be oil or grease lubricated.

7. Check for free movement of idler pulleys in response to belt tension. Lubricate as necessary with water resistant grease.
8. Ensure free movement of drive pulley. Replace if damaged or when showing signs of excessive wear.

NOTE: The drive pulley is jig assembled and should not be dismantled.

9. Check for free blade arm spring movement. Dismantle, re-grease or replace if necessary.

TYPE D5 WIPER INSPECTION/RENEWAL OF PARTS



WARNING: To ensure health & safety, remove power from the control unit, before working on any parts of the wiper either inside or outside.

TOOLS REQUIRED:

- I. TORQUE WRENCH WITH 6MM ALLEN KEY SOCKET
- II. TORQUE WRENCH WITH 17MM SPANNER
- III. TORQUE WRENCH WITH 22MM SPANNER
- IV. TORQUE WRENCH WITH 24MM SPANNER
- V. 4MM ALLEN KEY
- VI. 5MM ALLEN KEY
- VII. 6MM ALLEN KEY
- VIII. 6MM SOCKET
- IX. 8MM SPANNER
- X. 10MM SPANNER
- XI. 10MM SOCKET
- XII. 11MM SPANNER
- XIII. 14MM SPANNER
- XIV. 3MM FLAT BLADE SCREWDRIVER
- XV. NO2 CROSS POINT SCREWDRIVER

Blade Replacement

1. Loosen the 2 x 8mm nuts on the blade attachment clip.
2. Slide the blade attachment clip and blade assembly off the wiper arm.
3. Re-assembly is reversal of above instructions.

Arm Replacement

1. Remove the wash jets (if fitted) from the wiper unit.
2. Remove the 2 x M8 Cap head bolts at each end of the case and set aside. For longer units, clamps will also need to be removed.
3. Carefully lower the case so it hangs on the cover end plates.
4. Remove the 4 x M6x10mm screws securing the arm to the carriage plate. The arm and blade assembly is now free from the wiper, set both assembly and fasteners aside.
5. Slacken the blade clip bolts and remove blade. Set aside for reuse.
6. Re-assembly is reversal of above instructions.

Drive Belt

1. Remove the wash jets (if fitted) from the wiper unit.
2. Remove the 2 x M8 Cap head bolts at each end of the case and set aside. For longer units, clamps will also need to be removed.
3. Disengage front assembly from rear casing and support it without causing undue strain at the cables. Alternatively, open motor enclosure, disconnect wiring and draw cables out of glands. Lift off whole of front casing assembly.
4. Remove the 4 x M6x10mm screws securing the arm to the carriage plate. The arm and blade assembly is now free from the wiper, set both assembly and fasteners aside.

5. Slip the belt off the spring-loaded pulleys then slide the carriage/belt assembly out of the end of the case at the idler pulley end. Note: The assembly can be removed from the drive pulley end, but the park sensor will then need to be detached first (where fitted).
6. Inspect the drive belt and replace if damaged or worn. To detach the drive belt, note how the parts are assembled, then undo the 2 small nuts securing the belt to the clip.
7. Fit a new belt. Spare belts are supplied with nuts and clip plate. Refit and tighten nuts to the same height as the original and secure with Loctite thread lock (or similar).
8. Fit the carriage & belt assembly back into the casing and slip the belt onto the drive & idler pulleys.
9. Move the carriage by hand and ensure that it travels the full stroke length freely and without any obstruction. (Motion will feel restricted because the motor is being rotated if in doubt discount the motor). Refit the blade assembly with special screws removed.
10. Refit the front casing to the back casing and secure with the 2 off M8 cover bolts. Reconnect any cables that were removed at para 3.
11. If the motor enclosure has been opened silicone grease should be applied to the cork gasket face and the housing bolts tightened to a torque of 12-14NM. Check the cable entry gland nuts are tightened to the following torque:

Motor	-	5NM
Heater	-	4.2NM
Sensor	-	4.2NM

Guide Rollers

1. Follow the Drive Belt renewal instructions 1 to 5 above.
2. Remove the M5 Nylock nut & flat washer securing the guide roller and remove the guide roller. M5 Nylock nuts & flat washers supplied with set of 8 guide rollers.
3. Fit the new guide roller and secure with the M5 Nylock nut & flat washer. Ensure that M5 Nylock nut is tightened firmly.
4. Re-assembly is reversal of above instructions.



Caution: Guide rollers have an integral dry bearing and MUST NOT be oil or grease lubricated.

Motor Pod Replacement

1. Disconnect the motor pod from the ships wiring (motor, case heater, park sensor).
2. Follow the Drive Belt renewal instructions 1 to 5 above.
3. Remove the 2 screws securing the park switch to the wiper case, withdrawing the cable through the slot in the case. Keep screws and fittings safe.
4. From inside the front casing remove the 3 x M6 bolts and washers securing the motor pod to the front casing.
5. Fit new motor pod using 3 x M6 bolts and washers removed above.

6. Pass the park switch cable through the slot in the case, ensure that the rubber grommet is pushed into place. Secure the parking switch in position using the 2 screws and fittings removed above.
7. To re-assemble the wiper unit follow the Drive Belt renewal instructions 8 to 9 above.
8. Reconnect the motor pod to the ship's wiring (motor, case heater, park sensor).

Wiper Motor Replacement

1. Open motor enclosure, disconnect motor wiring and make a note of the connections.
2. Loosen motor pinch bolt and remove motor.
3. Ensure new motor has a rubber coupling fitted to the dog gear. Line up motor dog gear with drive shaft dog gear and slide motor into position. Tighten pinch bolt.
4. Wire to motor terminal connections.
5. Apply silicone grease to the motor pod cork gasket face, refit the motor pod cover and tighten the cover housing bolts to a torque of 12-14NM.

Type D5 Wiper Spares List

Ident	Description	Quantity	Part Number
1a	Flat Blade Assembly	1	FB WSL ***
1b	Articulated Blade Assembly	1	SP1279-553-***
1c	Heavy Duty Dual Blade Assembly	1	805201-***
2	Blade Attachment Clip (14mm Articulated Blade & FB)	1	SP1279-493
	Blade Attachment Clip (20mm Articulated Blade)	1	SP1279-532
3	Blade Arm Assembly	1	DD**#R
4	Blade Arm Torsion Spring	1	SP1292-221
4a	Arm Spring(s) - where fitted at top of arm ‡	A/R	1279-157
5	Blade Arm Pivot Blocks	1 Kit/arm	SP1279-486-#.#
6	Arm Attachment Screws	Set of 4	SP1588-488
7	Carriage Plate Assembly – Single Blade	1	SP1588-005-M
	Carriage Plate Assembly – Twin Blade	1	SP1588-312-***
8	8 Guide Rollers C/W Nuts	Set of 8	SP1588-117
	Guide Roller Assy	1	SP1588-006
10	Connecting Rod Assembly – Single Blade	1	SP1588-474
	Connecting Rod Assembly – Twin Blade	1	SP1588-474T
11	Vee-Belt	1	SP1279-106-###
12	Idler Pulley Assembly c/w Spring (Single Blade)	1	SP1588-452
	Idler Pulley Assembly c/w Spring (Twin Blade)	1	SP1588-452T
13	Idler Pulley Tension Spring (Single Blade)	Set of 2	SP1279-157
	Idler Pulley Tension Spring (Twin Blade)	Set of 2	SP1279-496
14	Idler Pulley Guide Assembly	1	SP1588-490
15a	Parvalux 61, 115V AC, 50/60Hz, 3-Ph, 2 Speed	1	SP1490-000GA61
	Parvalux 62D+, 230V AC, 50/60Hz, 3-Ph, 2 Speed	1	SP1490-000GA62D
	Parvalux 64-T, 230V AC, 50/60Hz, 1-Ph, 1 Speed	1	SP1490-000GA64
	Parvalux 64L, 230V AC, 50/60Hz, 1-Ph, Low Speed	1	SP1490-000GA64L
	Parvalux 65, 115V AC, 50/60Hz, 1-Ph, 1 Speed	1	SP1490-000GA65

Ident	Description	Quantity	Part Number
	Parvalux 65L, 115V AC, 50/60Hz, 1-Ph, Low Speed	1	SP1490-000GA65L
	Parvalux 81, 115V AC, 3 Speed	1	SP1490-000GA81
	Parvalux 82, 220V AC, 3 Speed	1	SP1490-000GA82
15c	PM3M 24Vdc Motor	1	SP1279-558-24
	PM3M 24Vdc Motor Slow Speed	1	SP1279-558L-24
16	Drive Pod Assembly	1	See calculator 1681-188
16a	Gasket Type D Mk5 Motor Pod	1	SP4030-066
16b	Pod Cover Bolt	8	zA0008-070S
16c	Cover Bolt Washer	8	SP1642-409
17	Rear Cover less Heater	1	See calculator 1681-161
18	Heater – Single Wiper	1	SP1588010\$\$\$^
18a	Heater Clips	a/r	SP1588-056
19	End Cover Left Hand	each	SP1588-058L*
	End Cover Right Hand	each	SP1588-058R*
19a	Fixing Screw	6	zP00012S-1.0S
19b	Blanking Plug	2	1588-062
19c	Metric Pipe Fitting	1	1588-038
19d	Tubing Plug	1	1588-037
21	Main Frame	1	See calculator 1681-161
24	Self-Parking Assembly (Reed sw and Magnet) 0.6m	1	SP1588-012-T
	Self-Parking Assembly (Reed sw only) 0.6m	1	SP1587-034-T
29	Pivot Block Securing Nut	2	zNL0.25F-S
not shown	Spray Jet Kit Single	1	SP1642-481
not shown	Spray Jet Kit Twin	1	SP1642-482
not shown	Spray Jet Kit Long Single	1	SP1642-483
not shown	Cover Bolts	2	zA0008-090S

Ident	Description	Quantity	Part Number
not shown	Drive Coupling – fitted inside Drive Shaft	1	SP1279-250
not shown	L050 Rubber Spider – fitted to Drive Coupling	1	SP1279-252

*** In the Part Number means length in mm.

**# In the Part Number means length in mm and arm spring pressure code.

In the Part Number means spring pressure in lb/ft. This is determined by Wynn according to arm and blade dimensions, together with any window rake angle from the vertical. This value can also be obtained from the original order documentation. See Wynn Agent for more details.

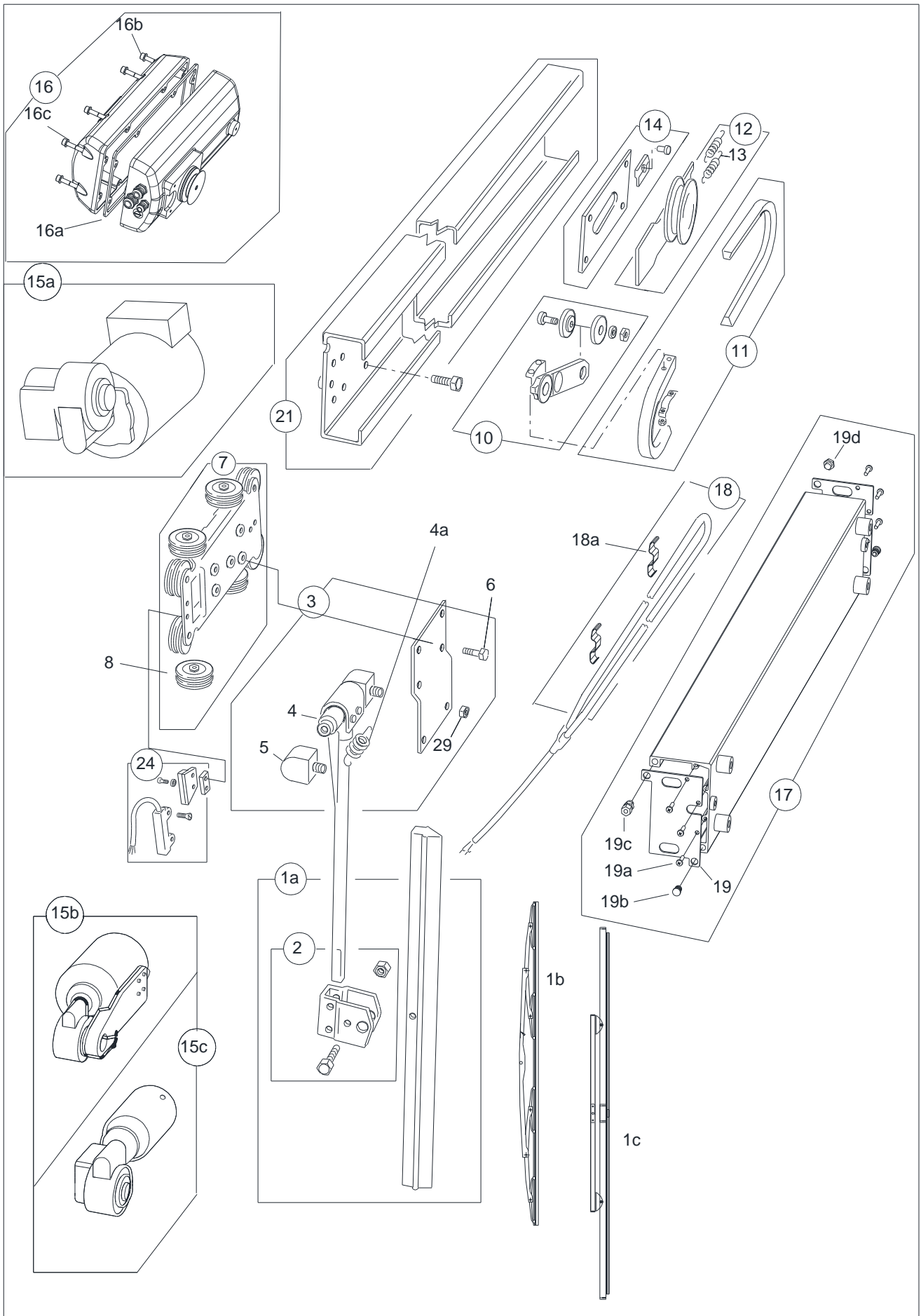
Belt length (written on belt as A###) in Inches.

‡ Where required, extra spring pressure is obtained by the addition of 1 or 2 springs to the wiper arm. Where fitted, order 1 or 2 as required. Contact Wynn Agent for more details.

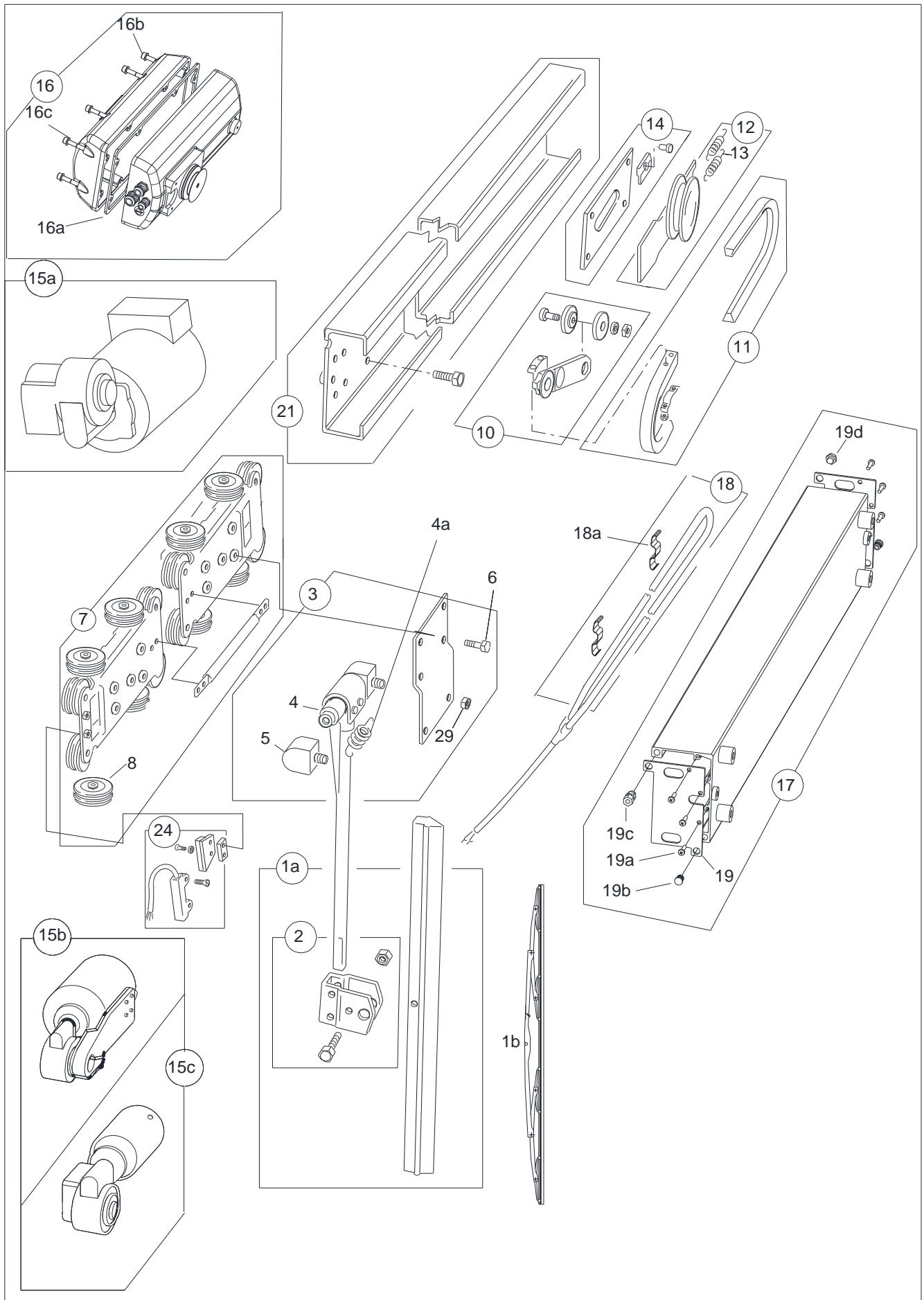
\$\$\$ Where \$\$\$ is voltage (220,115 or 024)

^^ Where ^ is heater length code.

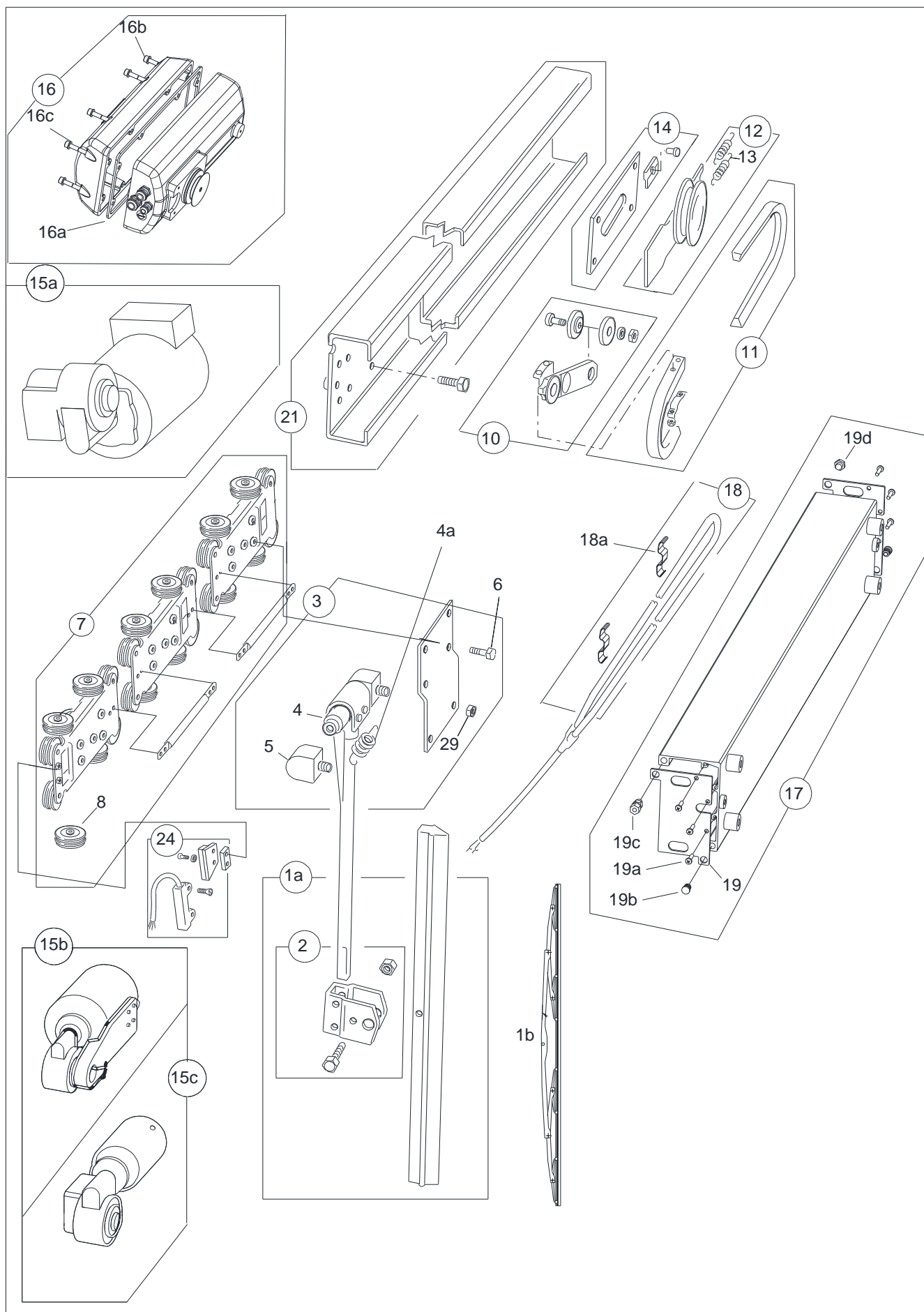
Type D5 Single Spare Parts Drawing



Type D5 Twin Spare Parts Drawing (Short)



Type D5 Twin Spare Parts Drawing (Long)



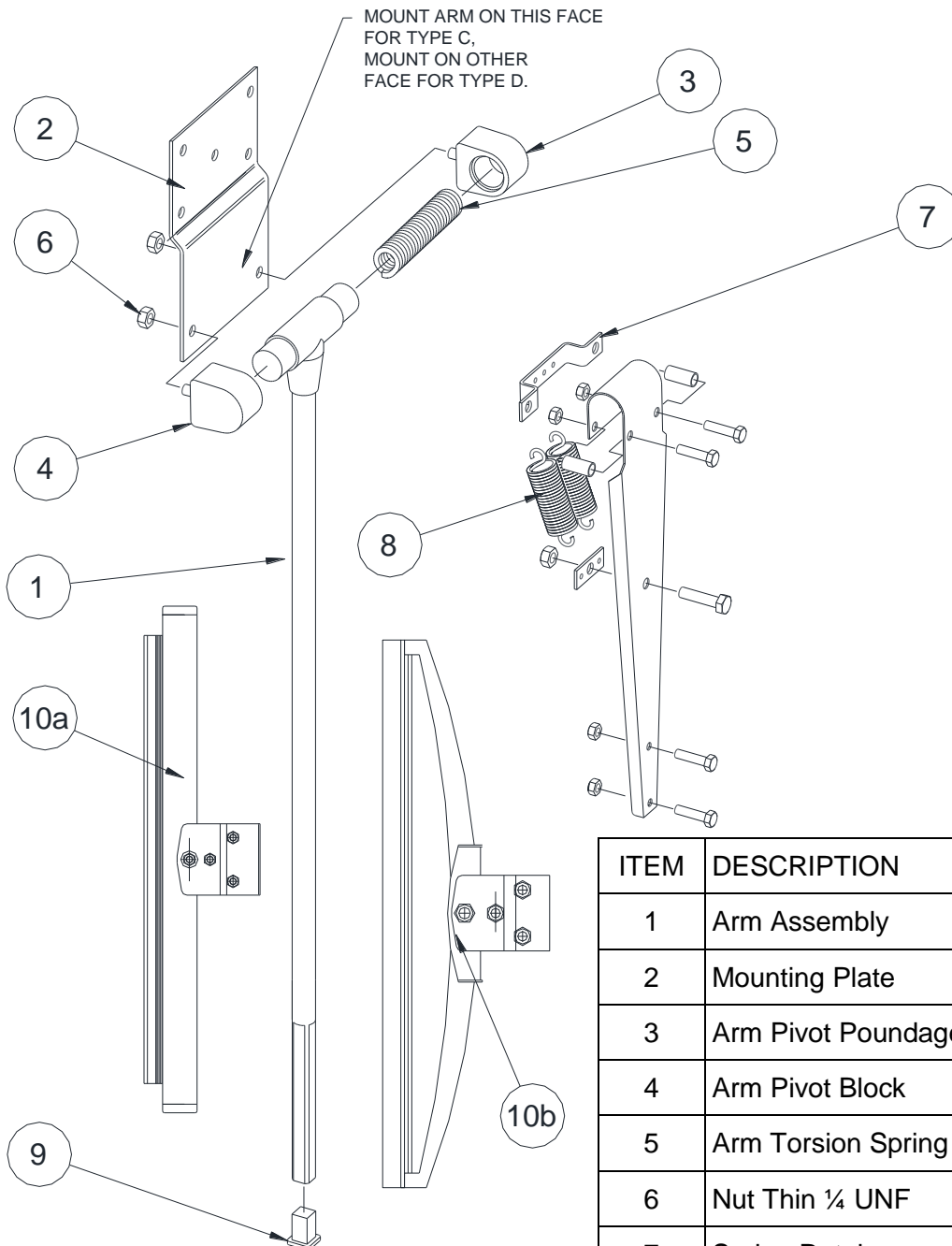
SLW Wiper Arm

The wiper arm is manufactured from stainless steel.

The wiper arm is shown below. One wiper arm assembly is used on a single bladed wiper, two wiper arm assemblies on a twin bladed wiper and three wiper arm assemblies on a triple bladed wiper unit.

The wiper arm assembly mounts on to the wiper assembly carriage plate. The wiper arm is secured to the carriage plate via four 10mm long mounting bolts.

The blade is secured to the arm assembly using the blade clip arrangement fitted to the wiper blade.



ITEM	DESCRIPTION	QTY
1	Arm Assembly	1
2	Mounting Plate	1
3	Arm Pivot Poundage Block	1
4	Arm Pivot Block	1
5	Arm Torsion Spring	1
6	Nut Thin ¼ UNF	2
7	Spring Retainer	1 (A/R)
8	Additional Spring	(0, 1, 2)
9	Sealing Plug	1
10a	Flat Blade	1
10b	Articulated Blade	

QUICK FIT SLW WIPER ARM INSTALLATION

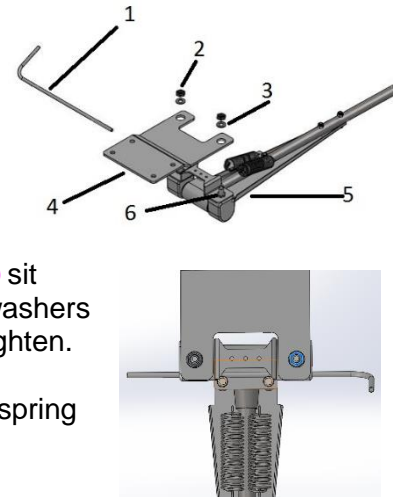


CAUTION: Ensure that the correct wiper, blade and arms are selected for each window. The wiper arm should not be installed/removed without the spring retaining pin fitted.

Installation

NOTE: The wiper unit should be supplied with the arm mounting plate (4) already fitted. If it is not fitted, remove 2 x ¼ UNF Thin Nuts (2) and 2 x M6 washers (3) from the pivot block threads and remove the wiper arm sub assembly (5) from the arm mounting plate (4). Fit the arm mounting plate (4) to the wiper unit before installing the wiper unit.

1. Remove 2 x ¼ UNF Thin Nuts (2) and 2 x M6 washers (3) from the pivot block threads.
2. Fit the wiper blade to the wiper arm sub assembly (5), ensuring that the captive end of the wiper is at the top.
3. Fit the wiper arm sub assembly (5) to the arm mounting plate (4) ensuring that the wiper arm sub assembly pivot block nuts (6) sit inside the holes in the arm mounting plate (4). Refit the 2 x M6 washers (3) and 2 x ¼ UNF Thin Nuts (2) to the pivot block threads and tighten.
4. Gently lift the wiper arm away from the window and remove the spring retaining pin (1). Keep safe for future use.



Arm Removal/Replacement

Removal

1. Gently lift the wiper arm away from the window and insert the spring retaining pin (1).
2. Remove 2 x ¼ UNF Thin Nuts (2) and 2 x M6 washers (3) from the pivot block threads. Keep safe for future use.
3. Remove the wiper arm sub assembly (5) from the arm mounting plate (4).

Replacement

1. Fit the wiper arm sub assembly (5) to the arm mounting plate (4) ensuring that the wiper arm sub assembly pivot block nuts (6) sit inside the holes in the arm mounting plate (4). Refit the 2 x M6 washers (3) and 2 x ¼ UNF Thin Nuts (2) to the pivot block threads and tighten.
2. Gently lift the wiper arm away from the window and remove the spring retaining pin (1). Keep safe for future use.

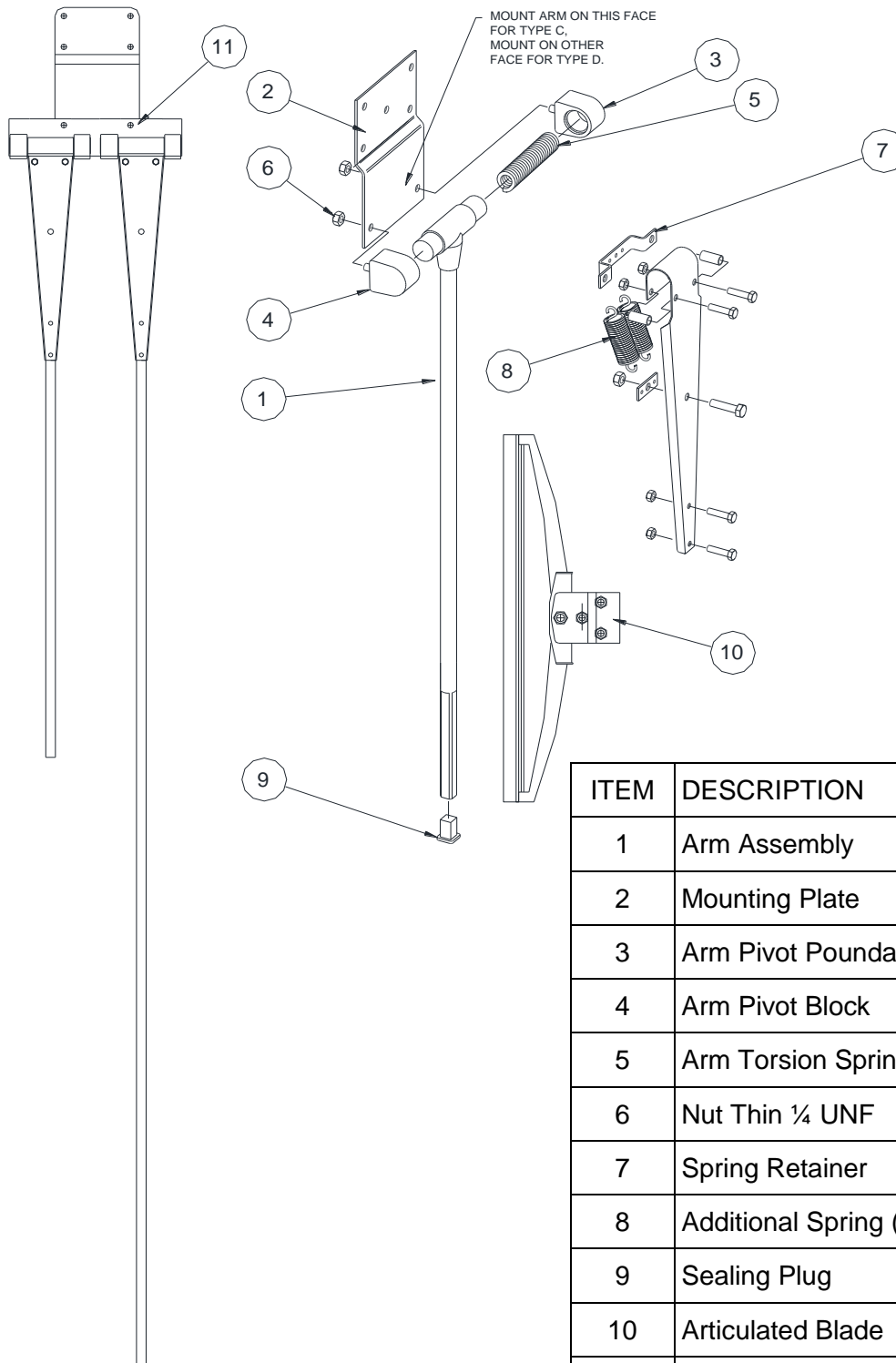
SLW Double Wiper Arm Assembly

The wiper arm is manufactured from stainless steel.

The wiper arm is shown below. One wiper arm assembly is used on a single bladed wiper, two wiper arm assemblies on a twin bladed wiper.

The double wiper arm mounting plate is secured to the wiper arm mounting plate with two bolts, washers and nuts. The complete wiper arm assembly mounts on to the wiper assembly carriage plate. The wiper arm is secured to the carriage plate via four 10mm long mounting bolts.

The blade is secured to the arm assembly using the blade clip arrangement fitted to the wiper blade.



ITEM	DESCRIPTION	QTY
1	Arm Assembly	2
2	Mounting Plate	1
3	Arm Pivot Poundage Block	2
4	Arm Pivot Block	2
5	Arm Torsion Spring	2
6	Nut Thin ¼ UNF	4
7	Spring Retainer	2(A/R)
8	Additional Spring (per arm)	(0, 1, 2)
9	Sealing Plug	2
10	Articulated Blade	2
11	Double Arm Mtg Plate	2

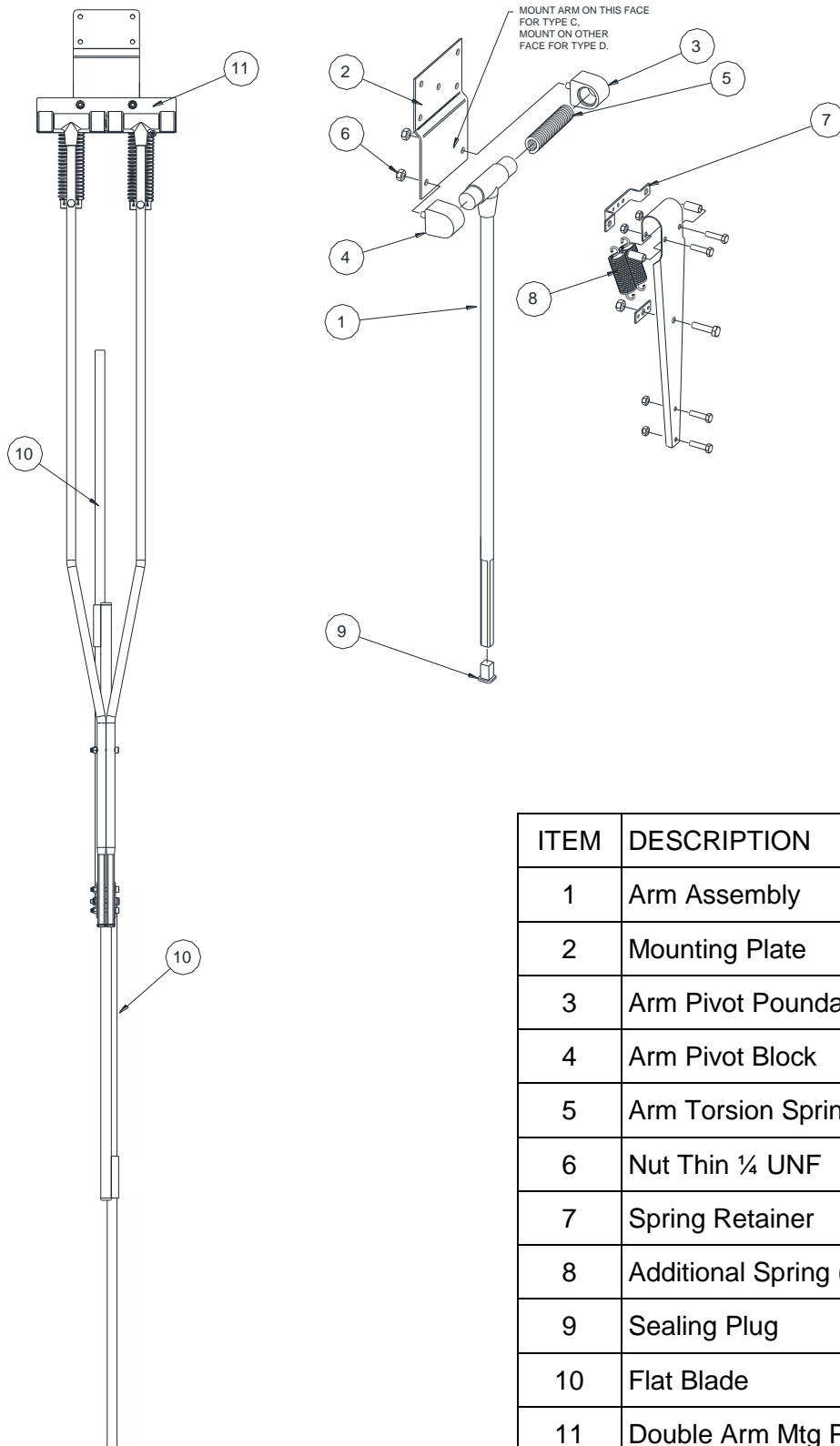
SLW Heavy Duty Wiper Arm Assembly

The wiper arm is manufactured from stainless steel.

The wiper arm is shown below. One wiper arm assembly is used on a single bladed wiper.

The heavy duty wiper arm mounting plate is secured to the wiper arm mounting plate with two bolts, washers and nuts. The complete wiper arm assembly mounts on to the wiper assembly carriage plate. The wiper arm is secured to the carriage plate via four 10mm long mounting bolts.

The blade is secured to the arm assembly using the blade clip arrangement fitted to the wiper blade.



ITEM	DESCRIPTION	QTY
1	Arm Assembly	2
2	Mounting Plate	1
3	Arm Pivot Poundage Block	2
4	Arm Pivot Block	2
5	Arm Torsion Spring	2
6	Nut Thin 1/4 UNF	4
7	Spring Retainer	2(A/R)
8	Additional Spring (per arm)	(0, 1, 2)
9	Sealing Plug	2
10	Flat Blade	2
11	Double Arm Mtg Plate	2

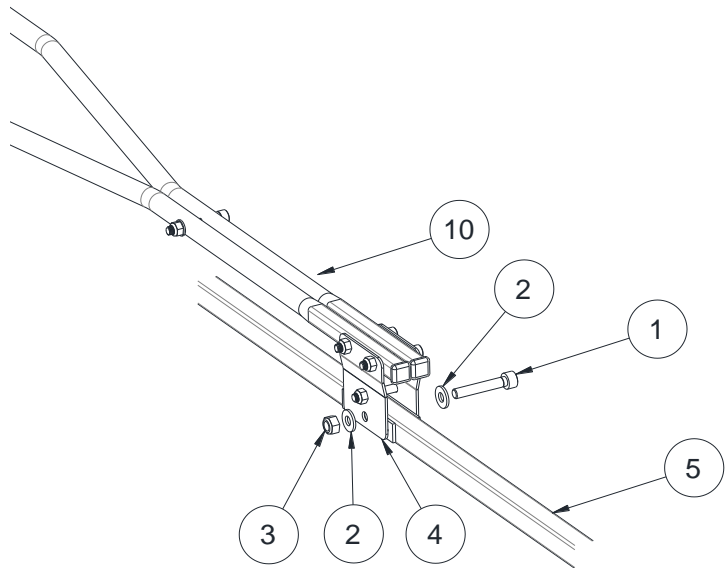
FITTING THE WIPER BLADE CARRIER

The wiper blades should be changed every 12 months but this is dependent on use and operating conditions

Ref Figure – Dual Blade Clip

1. Remove one M6 blade retaining bolt (1), two M6 flat washers (2), and M6 Nylock nut (3), from blade clip on double wiper arm assy (10).
2. Place dual blade carrier assy (5), into blade clip on Arm (10).
3. Ensure that all fixing holes align.
4. Secure in place with one M6 blade retaining bolt (1), two M6 flat washers (2), and M6 Nylock nut (3).

Figure – Dual Blade Clip



IMPORTANT

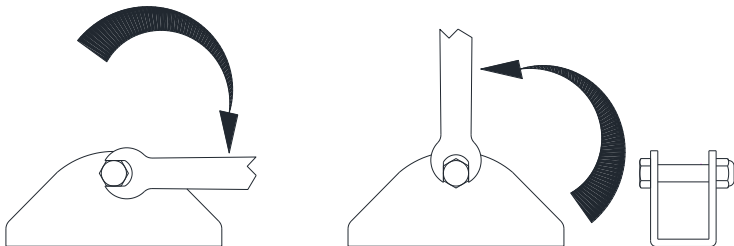
DO NOT over tighten blade carrier retaining bolt and nut, as blade carrier is required to pivot on glass.

Ref Figure – Nut Tightening

5. Secure nut until tight – then 1/4 turn back

Figure – Nut Tightening

Secure nut
until tight 1/4 turn back



NOTE

Pictorial representation only, May not be exact to supplied arm

EXAMPLE
NUMBER

D 5 1 1 1 1 A 1 C E B A 1 A - -

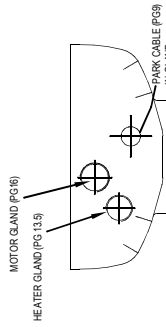
WIPER TYPE	CODE
D1	D1
D2	D2
D3	D3
D4	D4
D5	D5
C1	C1
C2	C2
C3	C3
C4	C4
C5	C5
C6	C6
C7	C7
C8	C8
C9	C9

STROKE TYPE	CODE
Single	1
Twin	2
Special Twin Case (Non-std crs)	Q
Special Single (See Instructions)	S
Special Twin (See Instructions)	T
Type C Single Old Style Cse/Cvr	3
Type D Single Old Style Cse/Cvr	4
Type C Twin Old Style Cse/Cvr	5
Type D Twin Old Style Cse/Cvr	6
Type 76 Converted to Type D	7

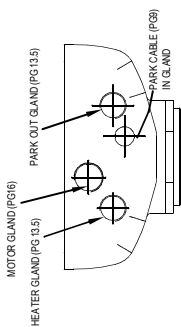
TWIN STROKE LENGTH STANDARD			
1 INCH (25MM) STROKE OVERLAP			
INCHES	MILLIMETRES	CODE	
2 X 13	2 X 330	13	
2 X 14	2 X 356	14	
2 X 15	2 X 380	15	
2 X 16	2 X 407	16	
2 X 17	2 X 430	17	
2 X 18	2 X 457	18	
2 X 19	2 X 480	19	
2 X 20	2 X 510	20	
2 X 21	2 X 533	21	
2 X 22	2 X 558	22	
2 X 23	2 X 583	23	
2 X 24	2 X 610	24	
2 X 25	2 X 635	25	
2 X 26	2 X 660	26	
2 X 27	2 X 685	27	
2 X 28	2 X 710	28	
2 X 29	2 X 735	29	
2 X 30	2 X 760	30	
2 X 31	2 X 787	31	
2 X 32	2 X 810	32	
2 X 33	2 X 835	33	
2 X 34	2 X 865	34	
2 X 35	2 X 890	35	
2 X 36	2 X 915	36	
2 X 37	2 X 940	37	
2 X 38	2 X 965	38	
2 X 39	2 X 990	39	
2 X 40	2 X 1015	40	
2 X 41	2 X 1040	41	
2 X 42	2 X 1065	42	
2 X 43	2 X 1095	43	
2 X 44	2 X 1145	44	
2 X 45	2 X 1195	45	
2 X 46	2 X 1245	46	
2 X 47	2 X 1295	47	
2 X 48	2 X 1345	48	
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2 X 59	2 X 1895	59	
2 X 60	2 X 1945	60	
2 X 61	2 X 1995	61	
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2 X 63	2 X 2095	63	
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2 X 65	2 X 2195	65	
2 X 66	2 X 2245	66	
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CONTROLLED

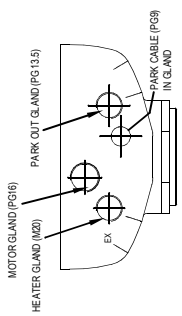
07 April 2011 12:44:41



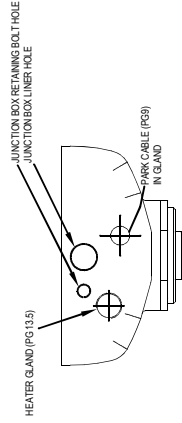
MOTOR BASE 4030-074



MOTOR BASE 4030-075



MOTOR BASE 4030-076



MOTOR BASE 4030-089

NOTE CRITICAL DIMENSIONS MARKED THUS 'CD'
SIGNIFICANT DETAILS MARKED THUS 'SD'

Mail. Type - Finish 1 - REMOVE SHARP EDGES
Mail. Part No. - Finish 2 -
Mail. Size - Other info -

CONTROLLED

Issue Date - 07/04/2011

GENERAL TOLERANCES

unless otherwise stated
Dimension - No decimal place ± 1
Dimension - One decimal place ± 0.5
Dimension - Two decimal places ± 0.25
Dimension - Three decimal places ± 0.125
Dimension - Four decimal places ± 0.0625
Angular Dimension $\pm 1^\circ$

3RD ANGLE



DO NOT SCALE

IF IN DOUBT ASK

1681-188

THIS GIVES THE PART NO FOR A COMPLETE MOTOR POD

MP

WIPER TYPE	CODE
D2	D2
D4	D4
D5	D5

PARKING CABLE LENGTH	CODE
Not Supplied	0
2 Metres	1
5 Metres	2
10 Metres	3
20 Metres	4
Terminated in Enclosure	5
	6

NOTE: DESCRIPTIONS ARE FOR REFERENCE ONLY AND ARE NOT EXHAUSTIVE. OTHER OPTIONS ARE POSSIBLE ie REED SWITCH PARKING OR TWIN HEATERS.

MOTOR TYPE	HEATER TERMINATED IN MOTOR POD	CABLE TYPE	PARKING TYPE	MOTOR GLAND	HEATER GLAND	PARK OUT PARK IN	CODE
DC & IPH	HEATER NOT TERMINATED	MULTIPLE CABLE REED SV	PG 13.5	BLANK	BLANK	BLANK 001	001
SPH	HEATER TERMINATED	MULTIPLE CABLE REED SV	PG 21	PG 13.5	BLANK	BLANK 002	002
DC & IPH	HEATER NOT TERMINATED	SINGLE CABLE REED SV	PG 16	BLANK	BLANK	PG 9 003	003
SPH	HEATER TERMINATED	SINGLE CABLE REED SV	PG 16	BLANK	BLANK	PG 9 004	004
DC & IPH	HEATER NOT TERMINATED	MULTIPLE CABLE REED SV	PG 16	BLANK	BLANK	BLANK 005	005
SPH	HEATER TERMINATED	MULTIPLE CABLE REED SV	PG 16	PG 13.5	BLANK	BLANK 006	006
DC & IPH	HEATER NOT TERMINATED	SINGLE CABLE REED SV	PG 16	BLANK	BLANK	PG 9 007	007
SPH	HEATER TERMINATED	SINGLE CABLE REED SV	PG 16	BLANK	BLANK	PG 9 008	008
DC & IPH	HEATER NOT TERMINATED	MULTIPLE CABLE REED SV	PG 16	PG 13.5	BLANK	BLANK 009	009
SPH	HEATER TERMINATED	MULTIPLE CABLE REED SV	PG 21	PG 16	PG 13.5	BLANK 010	010
DC & IPH	HEATER NOT TERMINATED	MULTIPLE CABLE REED SV	PG 21	PG 16	PG 13.5	BLANK 011	011
SPH	HEATER TERMINATED	MULTIPLE CABLE REED SV	PG 21	PG 13.5	BLANK	BLANK 012	012
DC & IPH	HEATER NOT TERMINATED	SINGLE CABLE PROX SV	PG 16	BLANK	BLANK	BLANK 013	013
SPH	HEATER TERMINATED	SINGLE CABLE PROX SV	PG 16	BLANK	BLANK	BLANK 014	014
DC & IPH	HEATER NOT TERMINATED	SINGLE CABLE PROX SV	PG 16	PG 13.5	BLANK	BLANK 015	015
SPH	HEATER TERMINATED	SINGLE CABLE PROX SV	PG 16	PG 13.5	BLANK	BLANK 016	016
DC & IPH	HEATER NOT TERMINATED	MULTIPLE CABLE PROX SV	PG 16	BLANK	BLANK	BLANK 017	017
SPH	HEATER TERMINATED	MULTIPLE CABLE PROX SV	PG 16	PG 13.5	BLANK	BLANK 018	018
DC & IPH	HEATER NOT TERMINATED	SINGLE CABLE PROX SV	PG 16	BLANK	BLANK	PG 9 019	019
SPH	HEATER TERMINATED	SINGLE CABLE PROX SV	PG 16	BLANK	BLANK	PG 9 020	020
DC & IPH	HEATER NOT TERMINATED	MULTIPLE CABLE PROX SV	PG 16	PG 13.5	BLANK	BLANK 021	021
SPH	HEATER TERMINATED	MULTIPLE CABLE PROX SV	PG 16	PG 13.5	BLANK	BLANK 022	022
DC & IPH	HEATER NOT TERMINATED	SINGLE CABLE PROX SV	PG 16	BLANK	BLANK	BLANK 023	023
SPH	HEATER TERMINATED	SINGLE CABLE PROX SV	PG 16	BLANK	BLANK	BLANK 024	024
CONFIGURATION TO INCLUDE POD WITH JUNCTION BOX (4030-089)							

Wiper Type	Motor Type	Code
11Vac 1ph 50/60Hz 1Sp	GA85	MO
11Vac 1ph 50/60Hz Low Sp	GA85-L	CA
11Vac 3ph 50/60Hz 2Sp	GA81	CB
11Vac 3ph 50/60Hz 1Sp	GA63	CG
230Vac 1ph 50/60Hz 1Sp	GA64	CH
230Vac 3ph 50/60Hz Low Sp	GA64-L	CJ
230Vac 3ph 50/60Hz 2Sp	GA68	CM
230Vac 3ph 50/60Hz 1Sp	GA68-L	CL
24Vdc 320rpm 90W (1279-051) PM3	GA82	CP
24Vdc 320rpm 150W (1279-513) PM5	GA82	CR
24Vdc 320rpm 90W (1279-557) PM3	GA82	CS
24Vdc 320rpm 150W (1279-557) PM5	GA82	CT
24Vdc 162rpm SLOW (1279-557L) PM3	GA82	CY
24Vdc 162rpm SLOW (1279-557L) PM5	GA82	CZ
Pneumatic Drive Motor	GA82	PN

Motors for use with the 8000 series control system	Code
C/D 230vac 1 & 3ph 50/60Hz	GA81
C/D 110vac 1 & 3ph 50/60Hz	GA82
	DB

PARKING	CODE
Parking Not Fitted	0
Standard Drive End Parking	
Normally open) - A
Reed Switch (Type D)) - G
Proximity Switch (Std D)	- G
Non Standard Idle End Parking	
Normally open) - D
Reed Switch (Type D)) - D
Proximity Switch (Type D) - H	

MOTOR CABLE LENGTH	
MULTIPLE CABLES (D)	SINGLE CABLE (D)
13 Supplied	A
2 Metres	B
3 Metres	X
5 Metres	C
6 Metres	
7 Metres	7
10 Metres	D
12 Metres	M
15 Metres	H
20 Metres	R
25 Metres	N
	P

PAINT FINISH	CODE
Standard White	A
Admiralty Light Grey	B
Munsell N9.5	C
R84890 Haze Grey	D
RAL 7001	E
Standard Grey	F
Black Dull RAL 9005	G
French Grey J724	H
Light Grey BS381 C	I
RAL 7000 Navy Grey	J
Cream 20320	K
Yellow RAL 1003	L
Black Dull RAL 9005	M
Black Dull RAL 9005	N
Black Dull RAL 9005	P
Canadian Grey CL1647	R
Special Paint (see special instructions)	S

HEATER FITTINGS LOOSE IN BAG FOR CUSTOMER FIT
ALL GLANDS AND PLUGS TO BE BAGGED AND ATTACHED EXCEPT MOTOR OR GLAND WHICH SHOULD BE FITTED.
ALL GLANDS AND PLUGS TO BE BAGGED AND ATTACHED EXCEPT MOTOR OR GLAND WHICH SHOULD BE FITTED.
ALL GLANDS AND PLUGS TO BE BAGGED AND ATTACHED EXCEPT MOTOR OR GLAND WHICH SHOULD BE FITTED.
ALL GLANDS AND PLUGS TO BE BAGGED AND ATTACHED EXCEPT MOTOR OR GLAND WHICH SHOULD BE FITTED.

17.	S25963 - JB VARIANT ADDED	09/04/18	MB
16.	S12011 - GA8# MOTOR MOD	21/10/14	APG
15.	S6127 - 023 VARIANT MOD	21/02/13	J.E.E.
14.	S5407 - POD BASE VARIANTS	11/12/12	J.E.E.
13.	S4306 - NEW VARIANT ADDED	21/08/12	J.E.E.
12.	D.O REQ. S484 DRAWING RE-FRAMED FOR PDF PURPOSES. OLD FORMAT NOT SUPPORTED.	07/04/11	D.G.H

Issue	Changes/Mod No.	Date	Name
025	D.D	08/12/05	

'D' TYPE SLW	
REF - COMPLETE MOTORPOD	
REF - PART NUMBER OPTIONS	

1681-188	17
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SERIES 1000 CONTROL UNIT

Series 1000 controllers are available in units from 1 – 5 ways. They allow direct connection to the wiper motor without the need for intermediate power supplies. Wipers are controlled in continuous or variable intermittent modes. Switches are fitted for Spray and Heater control. A park sensor allows the wiper to park at the motor end when it reaches the end of stroke.

The system complies with all relevant safety and EMC regulations.

Installation of Controller



Installation of the control unit and wiper must be done by a competent electrician.

1. Cut out and de-burr a hole in the console, relevant to the sizes shown in the table below.

Controller Type	Panel cut out (mm)	Overall size (mm)
1-way	45 x 91	48 x 96
2-way	91 x 91	96 x 96
3-way	139 x 91	144 x 96
4-way	186 x 91	192 x 96
5-way	186 x 91	192 x 96

2. Remove the 2 fixing brackets from the side of the controller case, noting how these fit.
3. Fit the unit into the mounting hole and secure with the fixing brackets.
4. Connect the wiring as shown in the wiring diagram.

Functional Check of Controller

The wiper switch has 6 positions. Fully anti-clockwise parks the wiper, next are four settings are for Intermittent wipe and finally continuous speed operation when turned fully clockwise.

1. Set wiper switch to the off position (fully anti-clockwise) & apply power to the system. Check each wiper switch in turn as follows.
2. Turn wiper switch fully clockwise. The wiper should start and run continuously.
3. Turn the wiper switch fully anticlockwise. The wiper should park at the motor end of its stroke.
4. Turn the wiper switch clockwise one position. The wiper will make one wipe and park again. This position gives the longest intermittent time (20 seconds).
5. Turn the wiper switch clockwise one position at a time. Each time the switch is turned the wiper should wipe once and park again. At the last position, just before fully clockwise, the intermittent interval should be around 4 seconds.
6. Heater. Switch on and ensure that the wipers begin to heat up.
7. Wash. Switch on and hold down, ensure water is sprayed through the system.
8. Multi-way grouped controllers with only one control switch has all the wipers operating together.

Fusing

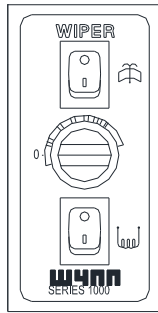


Remove power prior to working on controller.

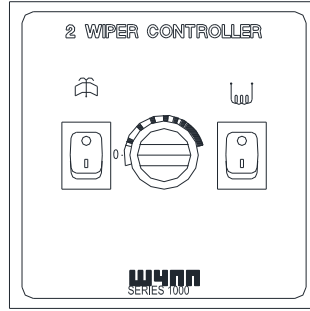
The controller has fuses to protect the motor, wiring and controller. The fuses will not blow in normal use; however, if the wiper is jammed, then these fuses are designed to blow before the motor will sustain any damage. The fuses are located behind the front panel inside the control unit. To replace a fuse:

1. Use a small screwdriver to carefully lever off the front panel bezel.
2. Holding the control knob, carefully pull out the controller front panel.
3. Undo the fuse holder which is located at the bottom right of the relevant controller PCB.
4. Renew the fuse and carefully refit the fuse holder. Avoid excessive force. Refit front panel and bezel.

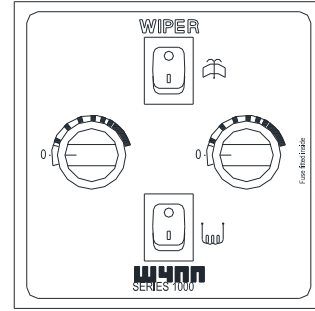
SERIES 1000 FRONT PANEL LAYOUTS



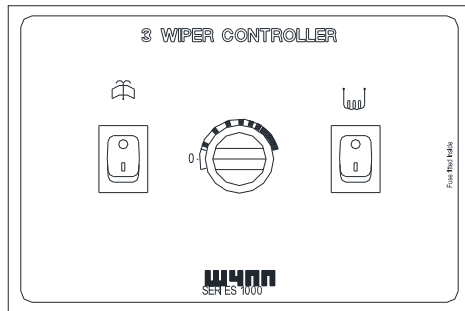
1 WAY



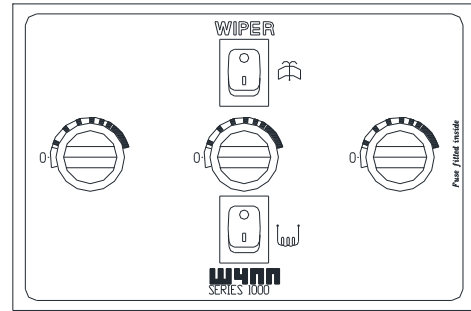
2 WAY GROUPED



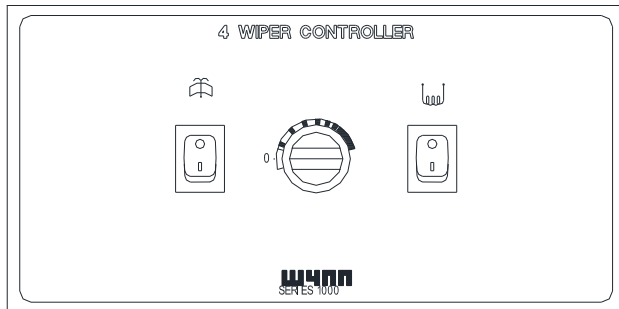
2 WAY INDEPENDENT



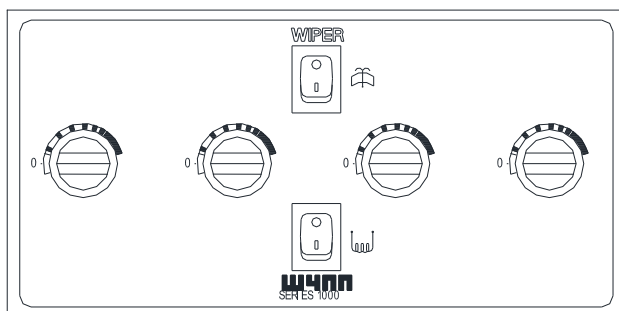
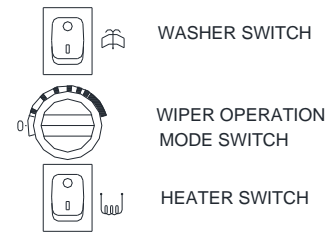
3 WAY GROUPED



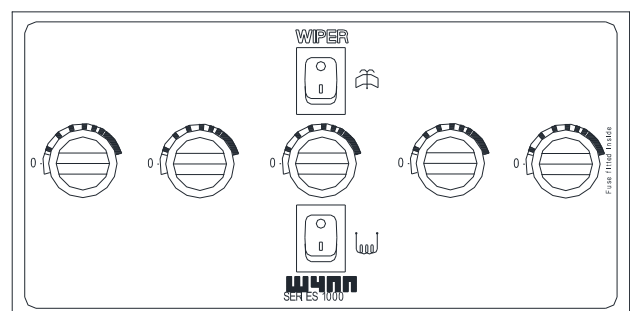
3 WAY INDEPENDENT



4 WAY GROUPED

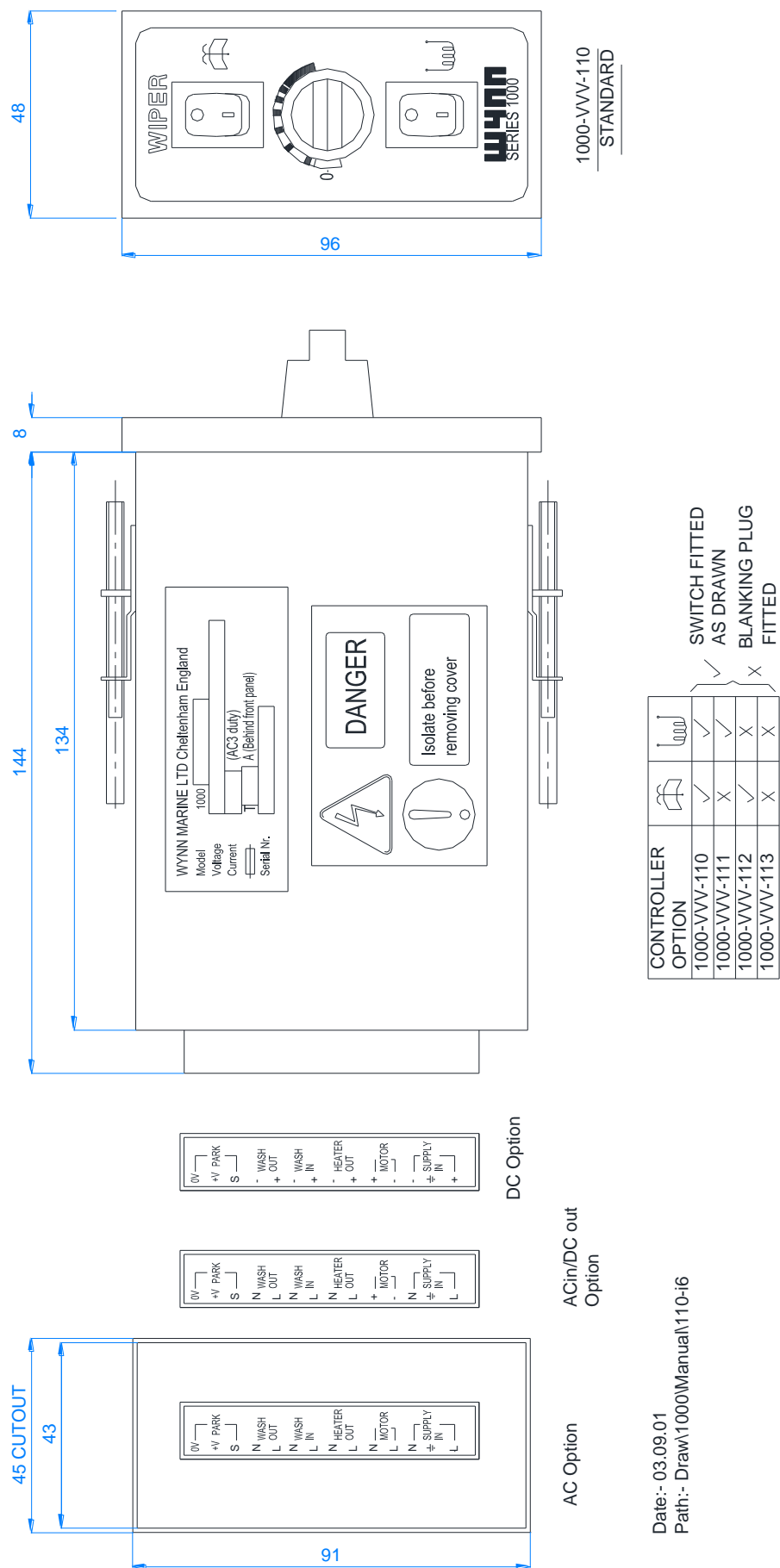


4 WAY INDEPENDENT



5 WAY INDEPENDENT

SERIES 1000 CONTROLLER SINGLE WAY DIMENSIONS



1000-VVV-110
STANDARD

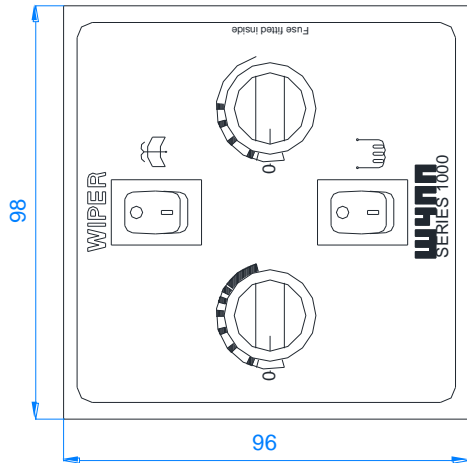
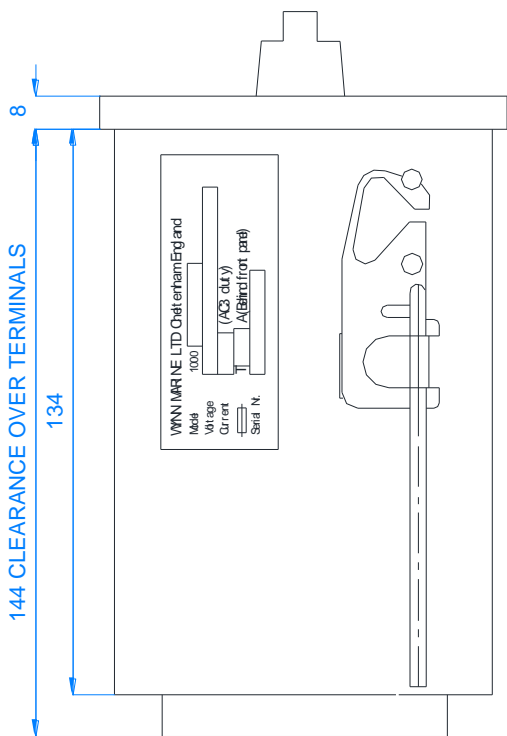
CONTROLLER OPTION		
1000-VVV-110	✓	✓
1000-VVV-111	✓	✓
1000-VVV-112	✓	✓
1000-VVV-113	✓	✓

SWITCH FITTED
AS DRAWN
BLANKING PLUG
FITTED

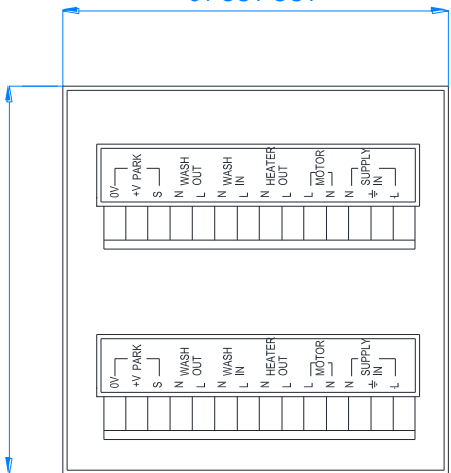
WEIGHT OF UNIT - 0.4 KG

Date:- 03.09.01
Path:- Draw\1000Manual\110-i6

SERIES 1000 CONTROLLER TWO WAY DIMENSIONS



91 CUT OUT



REAR OF AC UNIT

1000-VVV-220-M STANDARD

CONTROLLER OPTION	WIPER	-M	WIPER SUPPLY
1000-VVV-220-M	✓	-1	STANDARD
1000-VVV-221-M	✓	-2	AC IN DC OUT
1000-VVV-222-M	✓	✓	✓
1000-VVV-223-M	✓	✓	✓

× BLANKING PLUG
FITTED
✓ SWITCH FITTED
AS DRAWN

WEIGHT OF UNIT - 0.6KG

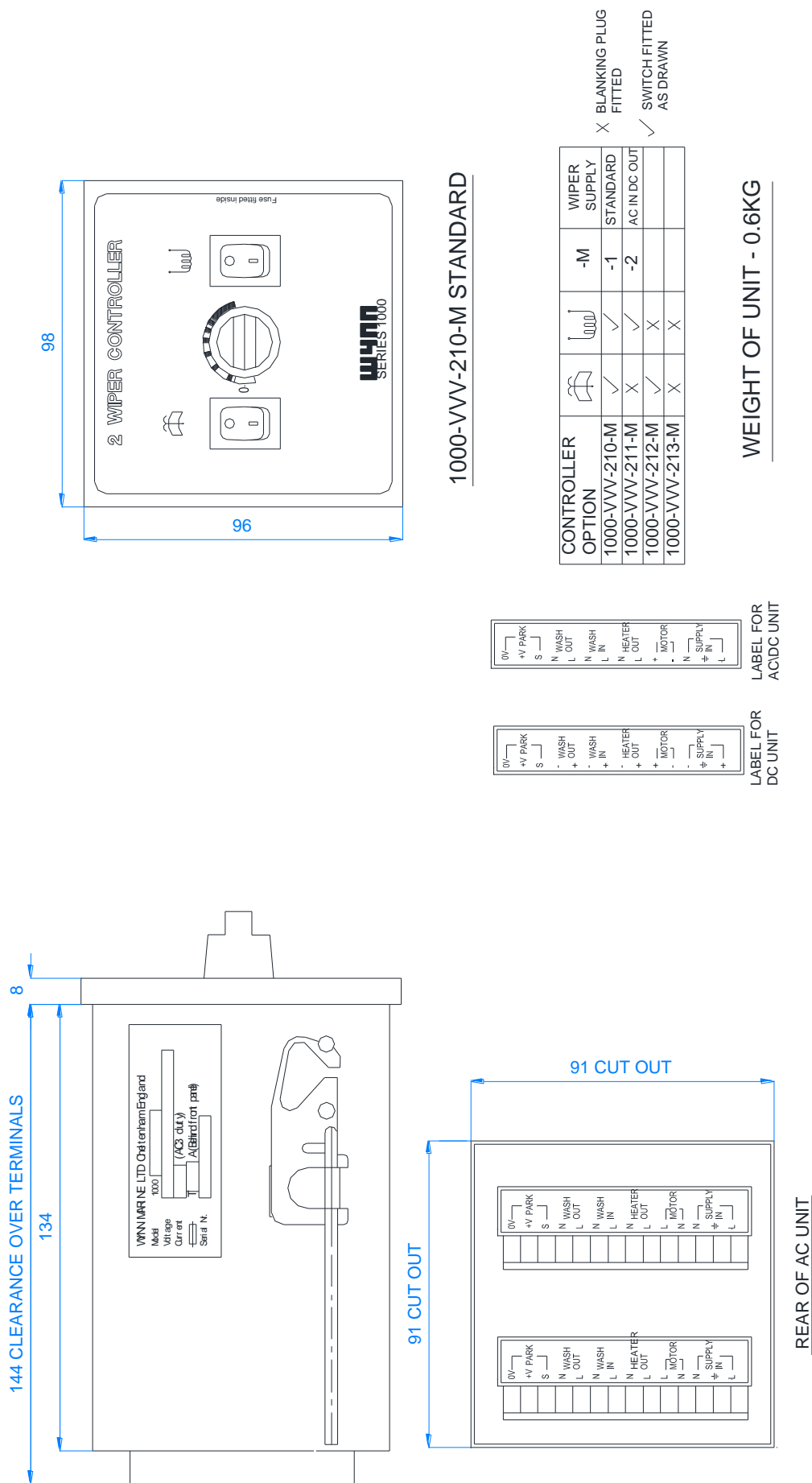


LABEL FOR
AC/DC UNIT

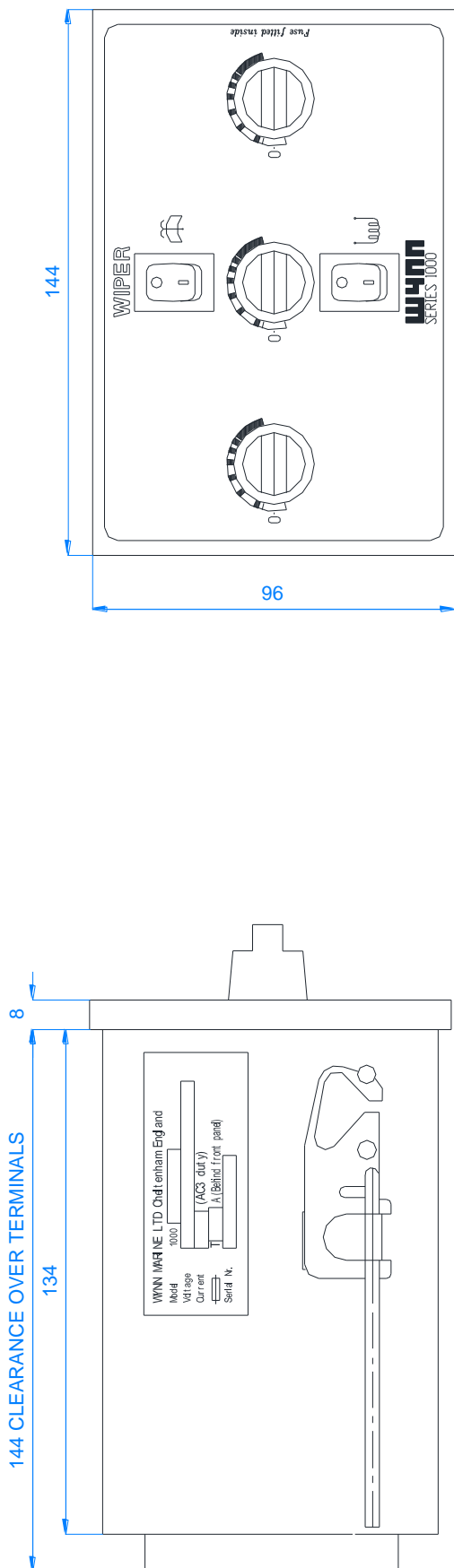


LABEL FOR
DC UNIT

SERIES 1000 CONTROLLER TWO WAY DIMENSIONS



SERIES 1000 CONTROLLER THREE WAY DIMENSIONS





1000-VVW-330-M STANDARD



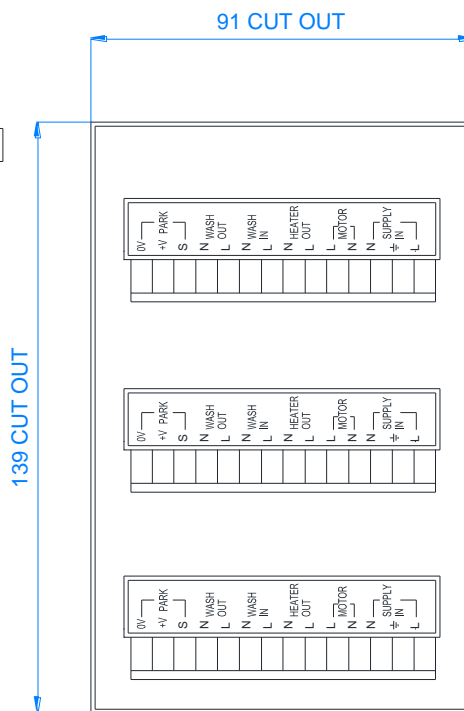
LABEL FOR
AC\DC UNIT



LABEL FOR
DC UNIT

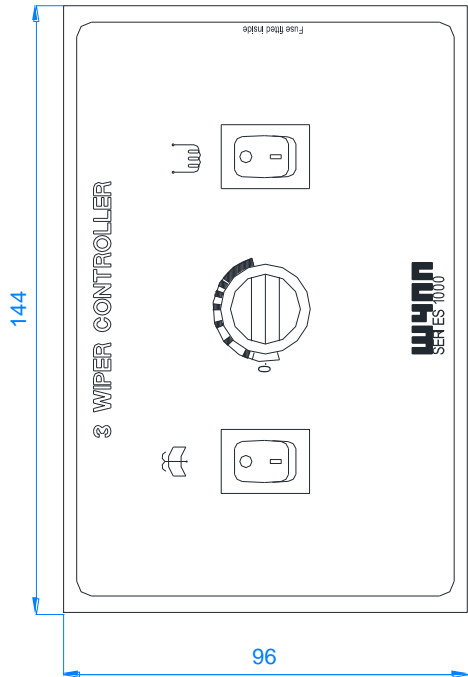
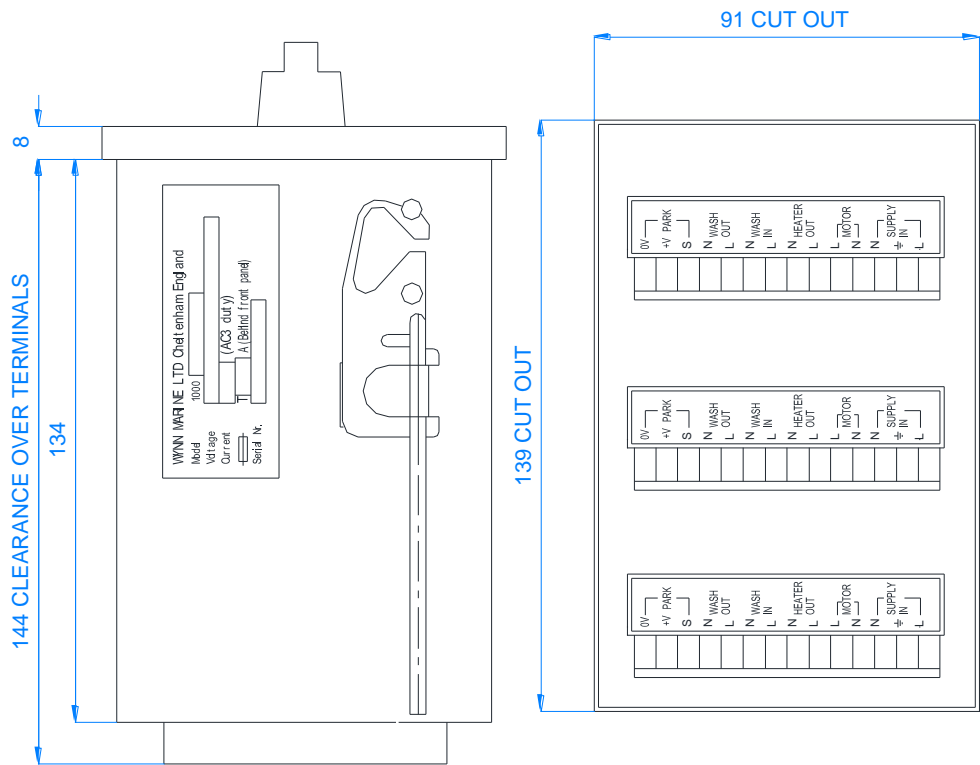
CONTROLLER OPTION			-M	WIPER SUPPLY		
				STANDARD	AC IN DC OUT	
1000-VVW-330-M	✓	✓	-1			✗ BLANKING PLUG FITTED
1000-VVW-331-M	✗	✓	-2			✓ SWITCH FITTED AS DRAWN
1000-VVW-332-M	✓	✗				
1000-VVW-333-M	✗	✓				

WEIGHT OF UNIT - 0.9KG



REAR OF AC UNIT

SERIES 1000 CONTROLLER THREE WAY DIMENSIONS



1000-VVV-310-M STANDARD

CONTROLLER OPTION		-M	WIPER SUPPLY
1000-VVV-310-M	✓	-1	STANDARD
1000-VVV-311-M	✗	-2	AC IN DC OUT
1000-VVV-312-M	✓		
1000-VVV-313-M	✗		

✗ BLANKING PLUG
FITTED
✓ SWITCH FITTED
AS DRAWN

WEIGHT OF UNIT - 0.9KG

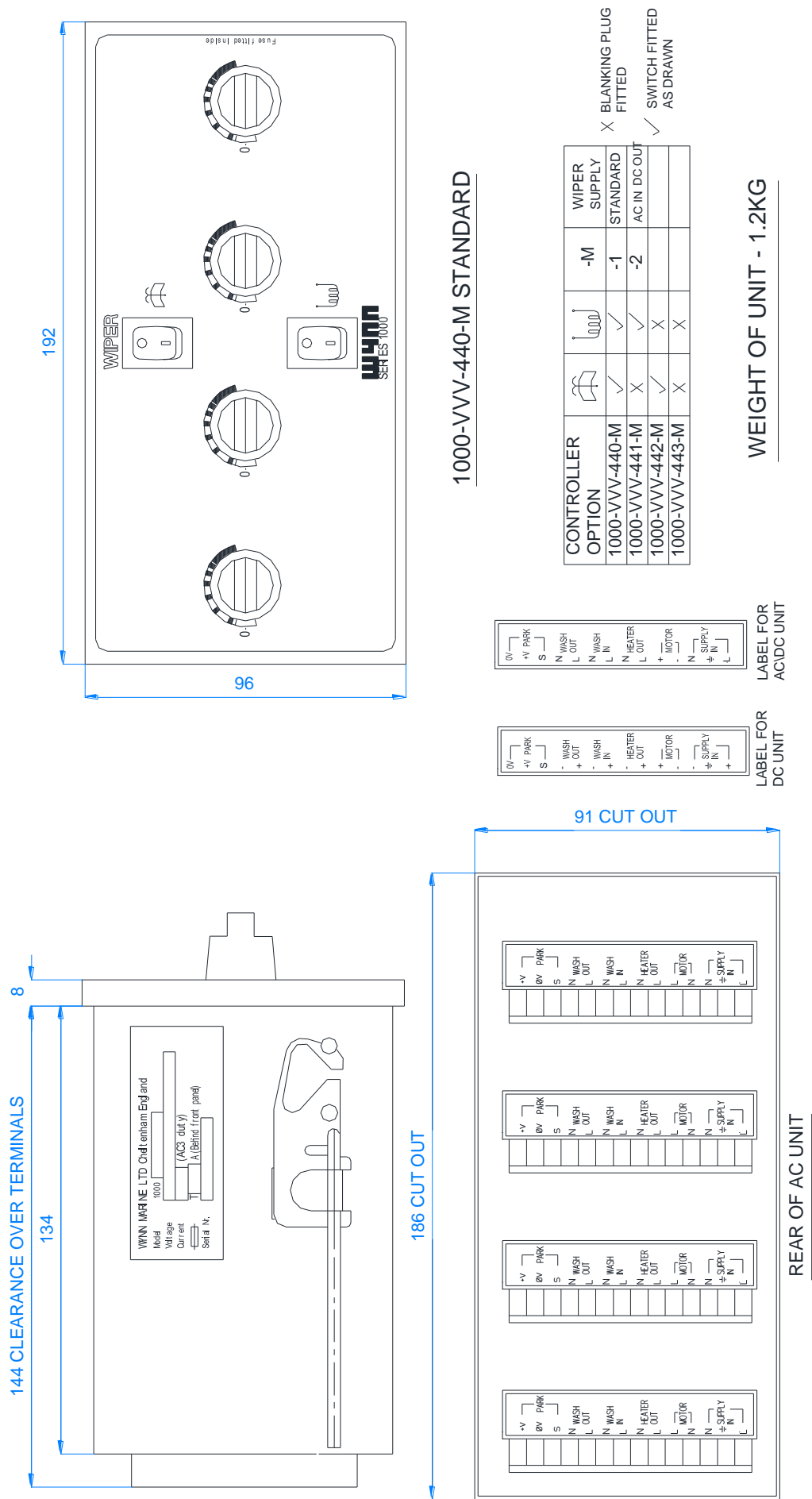


LABEL FOR
AC/DC UNIT

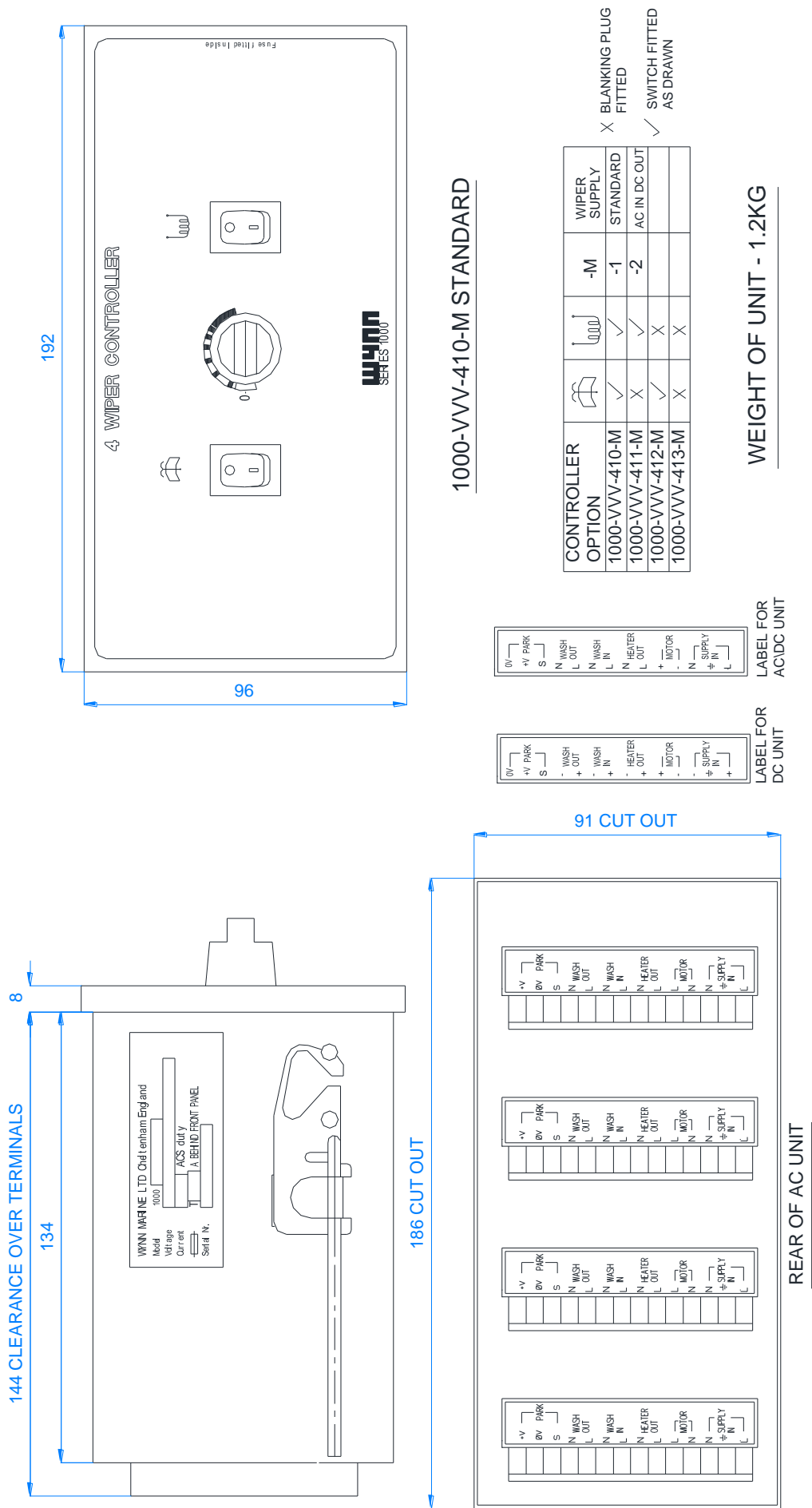


LABEL FOR
DC UNIT

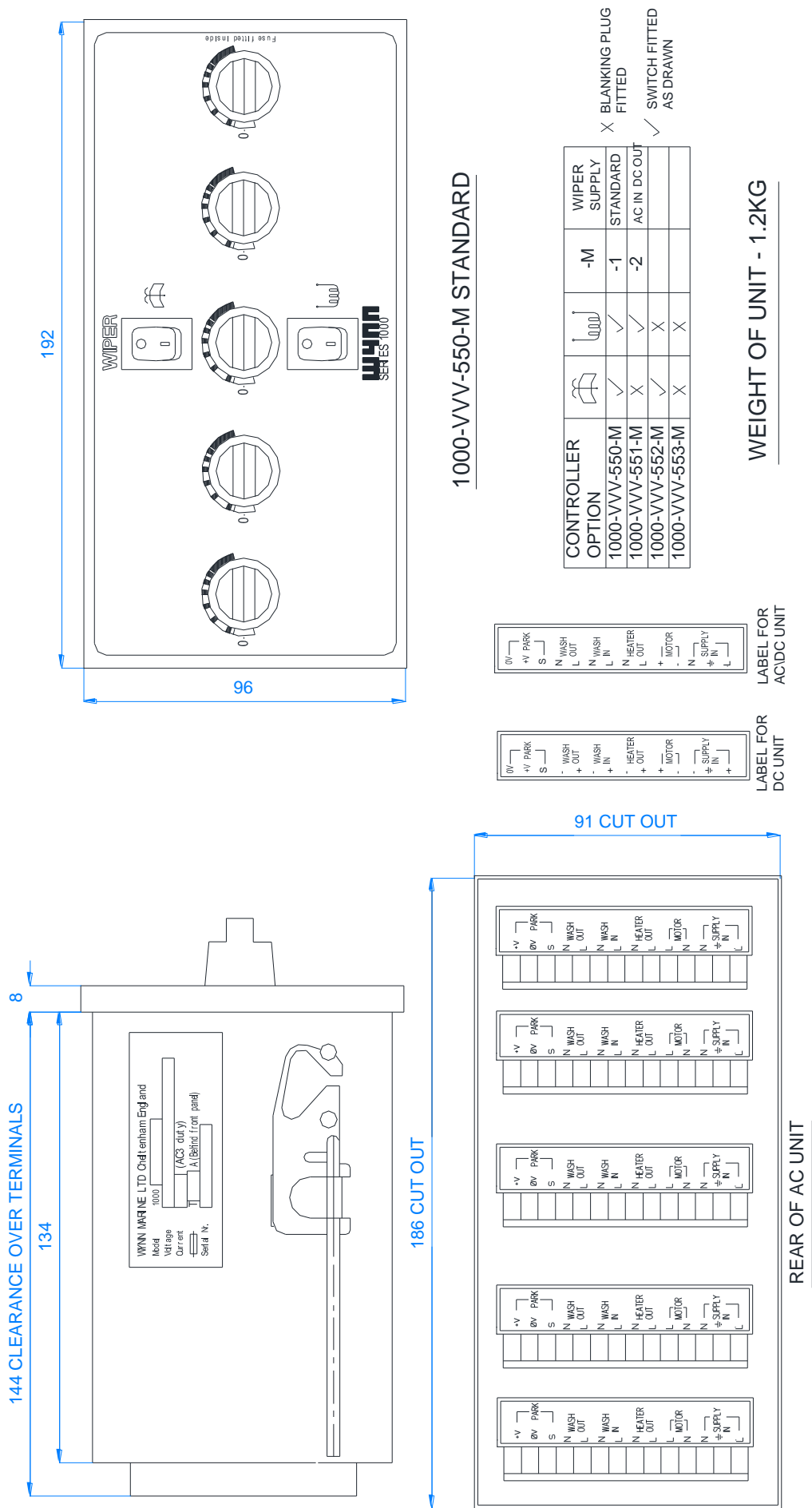
SERIES 1000 CONTROLLER FOUR WAY DIMENSIONS



SERIES 1000 CONTROLLER FOUR WAY DIMENSIONS




SERIES 1000 CONTROLLER FIVE WAY DIMENSIONS



These diagrams cover the vast majority of wiper installations. In the case that these diagrams do not cover your specific installation please contact customer services on +44 1527 61243



3rd ANGLE PRO.																					
TOLERANCES UNLESS OTHERWISE STATED																					
DECIMAL DIMS. TO 2 PLACES ± 0.1mm.																					
DECIMAL DIMS. TO 1 PLACE ± 0.25mm																					
NO DECIMAL PLACES ± 0.5mm																					
ANGLES ± 1°																					
MAT'L:-										ISS.		DIN		DATE		ISS.		DIN			
CAD FILE										M:\DRAW\4030\EL		SCALE:-		NTS		DRAWN:-		DCT		CHKD:-	
DRAWING No.										1000-EL-1AC-D5											

DOCUMENTATION

Whilst every effort is made to provide accurate information in good faith, no responsibility can be accepted by Wynn for inaccuracies and Wynn reserves the right to alter and amend specifications and designs without prior notice in line with our policy of continued improvement.

Spares Parts

To enable technical troubleshooting and ordering of spare parts, this manual should be kept in a safe place on board. It is also advisable to keep one set of spare parts on board for emergency use. Please contact Wynn directly or your local distributor / service centre for all order requirements.

Maintenance Schedules

Plan your maintenance work according to the schedule in this manual.

Our Commitment

We are committed to a 10 year product support programme. This ensures that any spare part will be available for any wiper at least 10 years after its purchase. It is strongly recommended that only genuine replacement parts manufactured by WYNN be used. This will guarantee that only suitable materials have been used and will ensure interchangeability of parts.

Quality and Testing

We are committed to the principles of Total Quality Management, ISO 9000. We manufacture our range of marine products to the highest standard and quality. We therefore maintain an ongoing schedule of product improvement and testing. To help us sustain such standards we maintain a salt-water test rig on which our products are taken, at random from the production line, and subjected to 3,000 hour continuous testing. We are sure you will receive many years trouble-free service from your Wynn product and hope you find this information pack comprehensive.

Guarantee

All Wynn equipment is tested before despatch from our works. The Windscreen Wiper System supplied has a 1 year warranty period provided the installation of the system and the subsequent maintenance is in accordance with the installation/maintenance instructions.

We cannot accept any responsibility for the installation of equipment, or damage to the equipment during installation, or normal wear and tear. The guarantee is negated if the equipment is not installed strictly observing the instructions set out in this manual, or not maintained as specified.

The Wiper System is very reliable but to ensure its continued smooth running we recommend that the following guidelines are adhered to:-

Monthly

- Check for wear on all parts subject to friction
- Visual inspection should be made of the blades to ensure that they are still in good condition and replace as soon as there are signs of wear or damage

Annually

- It is recommended that the blades are changed every 12 months

After the Wiper System has been operating in severe weather conditions it is advisable to thoroughly check the unit for signs of wear or damage.

This warranty excludes the wiper blades which are a consumable item and any replacements that are detailed in the manual as part of any regular maintenance requirement.

This guarantee is expressly in lieu of all other guarantees expressed or implied and of all other obligations of liabilities on our part, and we neither assume nor authorise any other person to assume for us any other liability in connection with the sale of our equipment. Faulty equipment must be returned, carriage paid, to our works for examination. Any legal action must be settled in the English courts under English law.

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A worldwide network of agents supports Wynn's Marine product range. For details of the nearest Wynn agent please contact our Head Office. Wynn Agents operate in the following countries.

Argentina, Australia, Brazil, Canada, Chile, China, Croatia, Denmark, Egypt, Finland, France, Germany, Greece, Hong Kong, Iceland, India, Israel, Italy, Japan, Korea, Netherlands, New Zealand, Norway, Oman, Peru, Poland, Portugal, Russia, Singapore, South Africa, Spain, Sweden, Taiwan, Turkey, Ukraine, U.S.A.



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