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Installation and Operation Manual

Type D MKV Straight Line Wiper

Without Control System

Type D MK V 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 IP66. 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 either single or variable speed operation. Complies with the EMC Directive according to the following: EN50081-1 & EN 50082-1.

The AC 1-phase motor option is single speed operation. A thermal cut out is fitted that will disconnect the windings from power in the case of over temperature. The switch will reset itself when the motor has cooled down. Complies with the requirements of the LVD and EMC directives to the following: EN 55014, EN 60555, EN 50081-1, EN 50082-1 and EN 60335-1:1990.

The AC 3-phase motor option is for either 1 or 2 speed operation. Complies with LVD and EMC directives according to the following: EN 55014, EN 60555, EN 50081-1, EN 50082-1 and EN 60335-1:1990

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
PM5M	permanent magnet	24V DC	7.1 A	10.0 A	1.4 m/s	3.0 m	IP54
PARV 69	1 Phase induction	100 V	1.9/2.1 A	2.5/3.15 A	1.6 m/s	0.5 m	IP20
PARV 65	1 Phase induction	115 V	2.3/2.6 A	2.5/3.15 A	1.4 m/s	0.5 m	IP20
PARV 65L	1 Phase induction	115 V	1.5/1.6 A	2.0/3.15 A	0.7 m/s	0.5 m	IP20
PARV 64	1 Phase induction	230 V	0.9/1.3 A	1.6/2.0 A	1.4 m/s	0.5 m	IP20
PARV 64L	1 Phase induction	230 V	0.75/0.95 A	1.0/1.6 A	0.7 m/s	0.5 m	IP20
PARV 61	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
PARV 62D	3 Phase Induction	220V AC	0.6 / 0.5 A	1.0/1.0 A	0.7/1.4 m/s	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. Standard cable length is 2M. Optional lengths are 5M, 10M, 15M and 20M. Power consumption is according to the wiper stroke length, shown below.

Heater Power Ratings

STROKE (mm)	STROKE (inch)	HEATER SIZE	WATTS (24VDC)	STROKE (mm)	STROKE (inch)	HEATER SIZE	WATTS (24VDC)
305	12	1	97	965	38	5	256
330	13	1	97	990	39	5	256
356	14	1	97	1015	40	5	256
380	15	1	97	1040	41	5	256
407	16	1	97	1065	42	5	256
430	17	1	97	1095	43	6	301(238)
457	18	2	135	1118	44	6	301(238)
480	19	2	135	1145	45	6	301(238)
510	20	2	135	1195	47	6	301(238)
533	21	2	135	1205	47	6	301(238)
558	22	2	135	1245	49	6	301(238)
585	23	2	135	1295	51	7	345(208)
610	24	3	173	1335	53	7	345(208)
635	25	3	173	1400	55	7	345(208)
660	26	3	173	1450	57	7	345(208)
685	27	3	173	1500	59	8	390(186)
710	28	2	173	1560	61	8	390(186)
735	29	3	173	1605	63	8	390(186)
760	30	4	211	1700	67	9	440(175)
787	31	4	211	1800	71	9	440(175)
810	32	4	211	1930	76	10	485(150)
840	33	4	211	1985	78	10	485(150)
865	34	4	211	2005	79	10	485(150)
890	35	4	211	2100	83	11	530(133)
915	36	5	256	2260	89	12	574(123)
940	37	5	256				

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.

Type D MK V 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.

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

   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 two wiper fixing holes, or calculate their position from the drawing i.e. stroke length plus 172 mm.
4. Drill the remaining wiper fixing and 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 blade arm to the carriage plate.

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

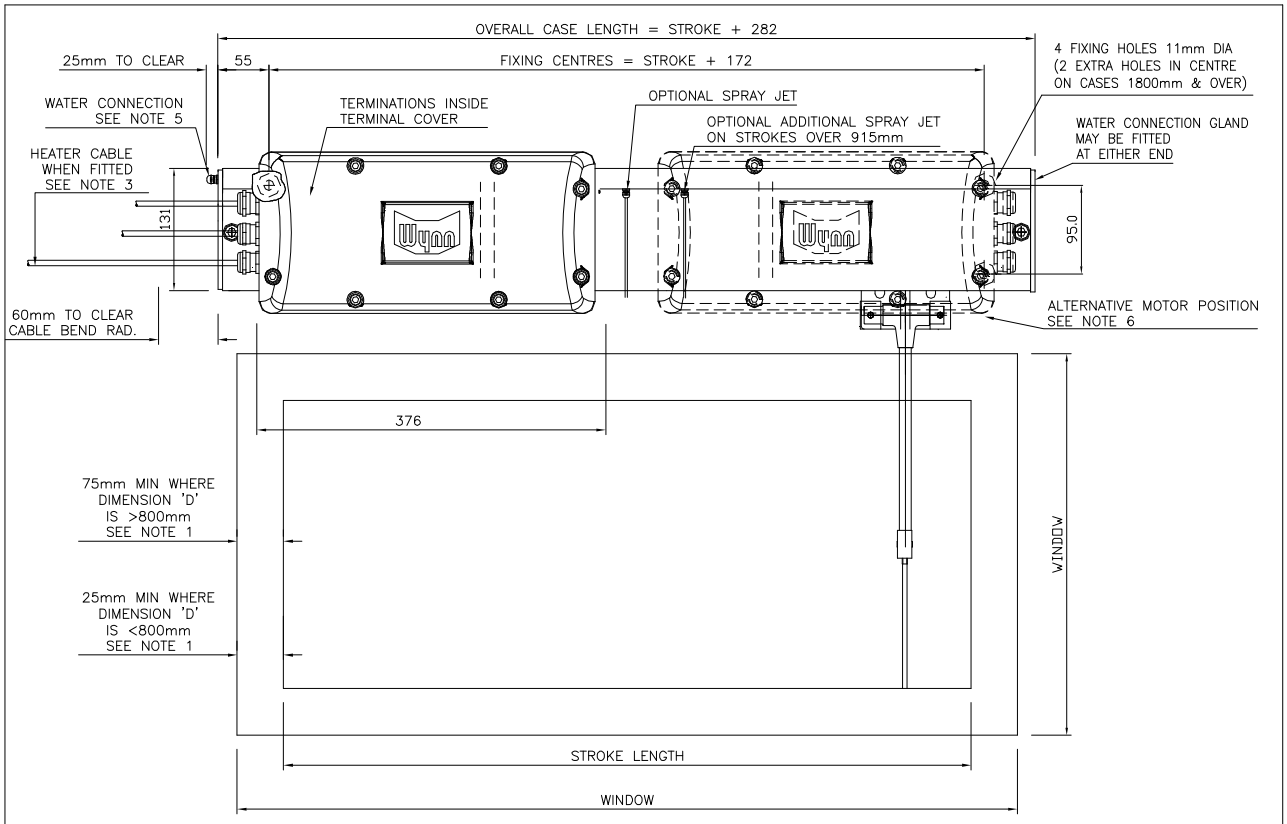
7. Bolt the front case to the back case using the 2 off M8 bolts fitted.
8. If necessary, slacken the screws on the blade attachment clip, move the blade up or down for optimum position and then retighten screws.
9. Move the blade assembly over its full stroke and check that there is no restriction to movement (the motor will offer some resistance, but should not jam the wiper). Investigate and rectify any restrictions. If necessary adjust the 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.

3 – Phase AC motors

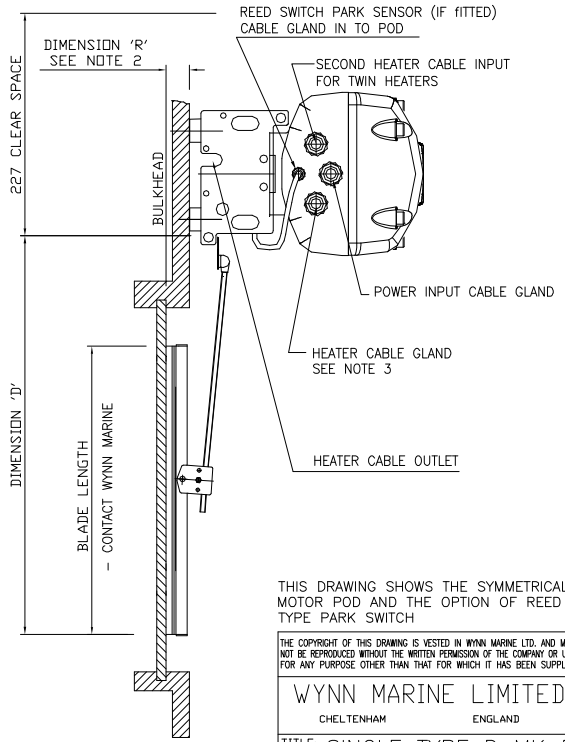
Correct phasing of 3 Phase motors is essential for operation of the wiper in the same direction at both high and low speeds. Connect as per the table below.

Motor Termination	Function	Notes
A3	High Speed	For Low speed operation, connect together and isolate
B3	High Speed	
C3	High Speed	
A2	Low Speed	Not connected when in high speed
B2	Low Speed	
C2	Low Speed	
EARTH	Protective Earth	Must be connected for safety

Type D MK V Single Common Cover Installation Drawing.



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 MAY BE WIRED INTO THE MOTOR TERMINAL BLOCK OR SUPPLIED WITH 2 METRES OF FREE CABLE.

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.

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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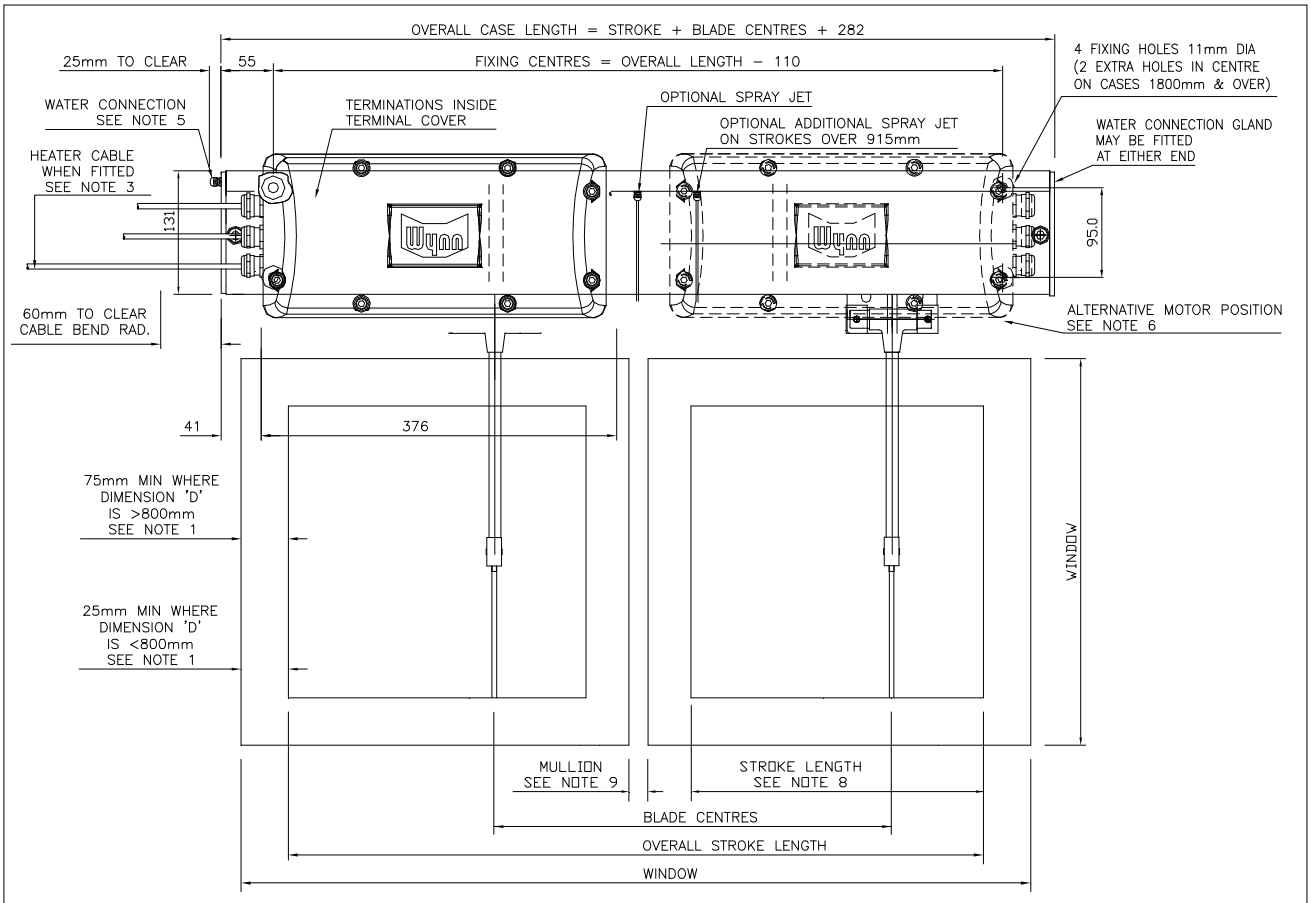
WYNN MARINE LIMITED
CHELTENHAM ENGLAND

TITLE:- SINGLE TYPE D MK 5 INSTALLATION DRG.

DRAWING No. 4030-003-SYM

Type D MK V Twin Common Cover Installation Drawing.



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 MAY BE WIRED INTO THE MOTOR TERMINAL BLOCK OR SUPPLIED WITH 2 METRES OF FREE CABLE.

4 CUSTOMER TO ROUTE CABLING FROM MOTOR HOUSING AS REQUIRED.

5 CUSTOMER TO PIPE WATER DIRECTLY ON TO WATER SPRAY COUPLING.

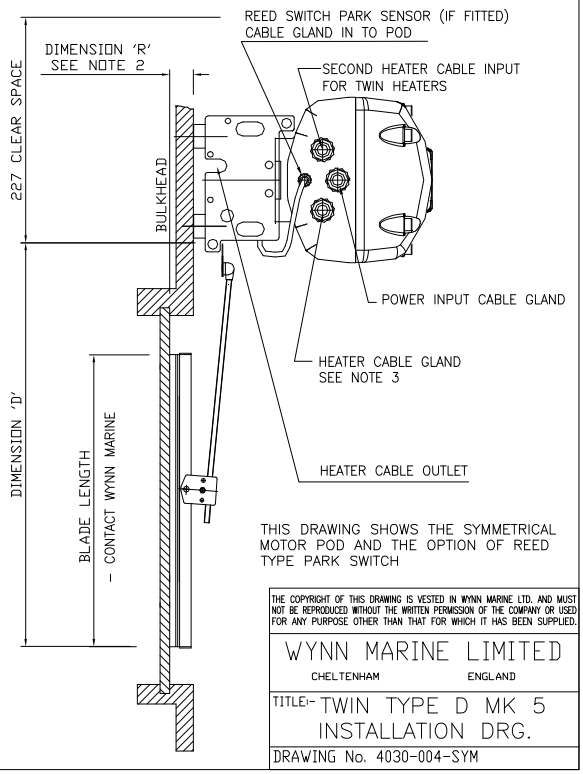
6 MOTOR POSITION SHOWN AS STANDARD, OPPOSITE ORIENTATION AVAILABLE UPON REQUEST.

7 WHEN FITTED THE PARK SWITCH IS WIRED TO TERMINALS ON THE MOTOR TERMINAL BLOCK. PARKING IS AT THE MOTOR END.

8 WHEN TWIN WIPERS ARE USED ON SINGLE WINDOWS THE WIPER BLADES SHOULD BE SET TO OVERLAP BY 25mm.

9 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



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

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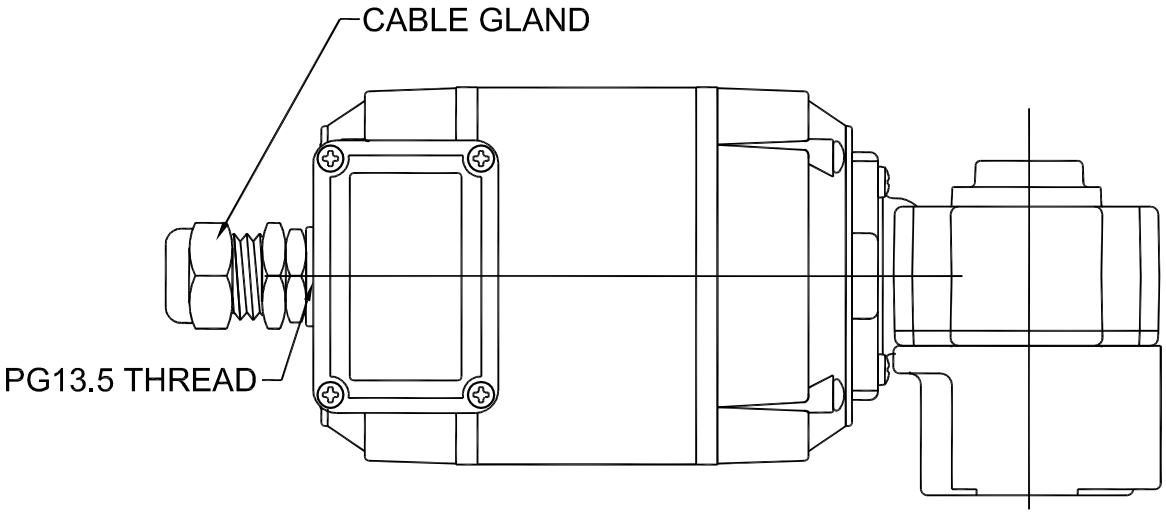
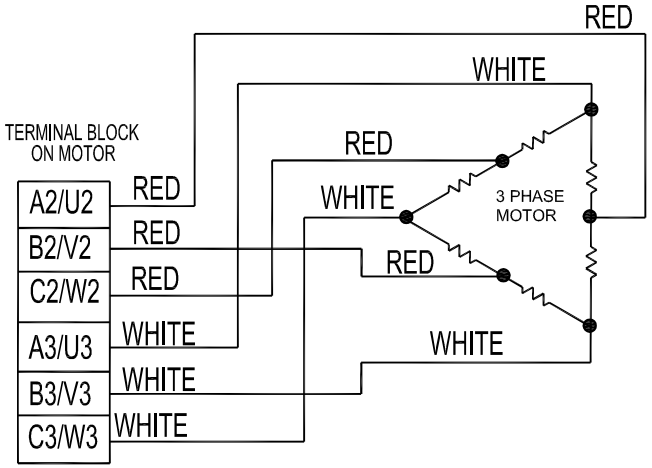
WYNN MARINE LIMITED
CHELTENHAM ENGLAND

TITLE:- TWIN TYPE D MK 5 INSTALLATION DRG.

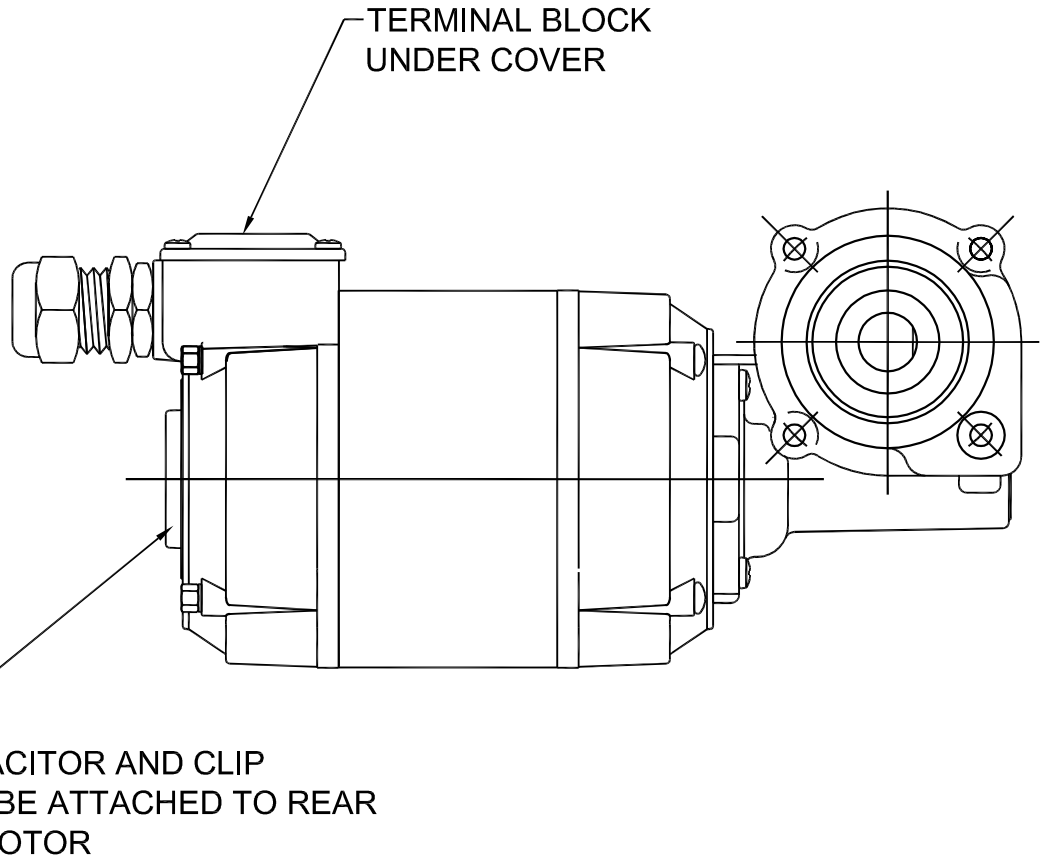
DRAWING No. 4030-004-SYM

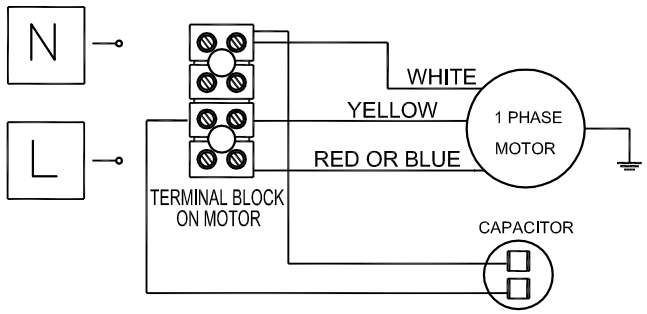
WIRING DIAGRAM FOR PARVALUX TYPE AC MOTORS
FOR WYNN TYPE D STRAIGHT LINE WIPER



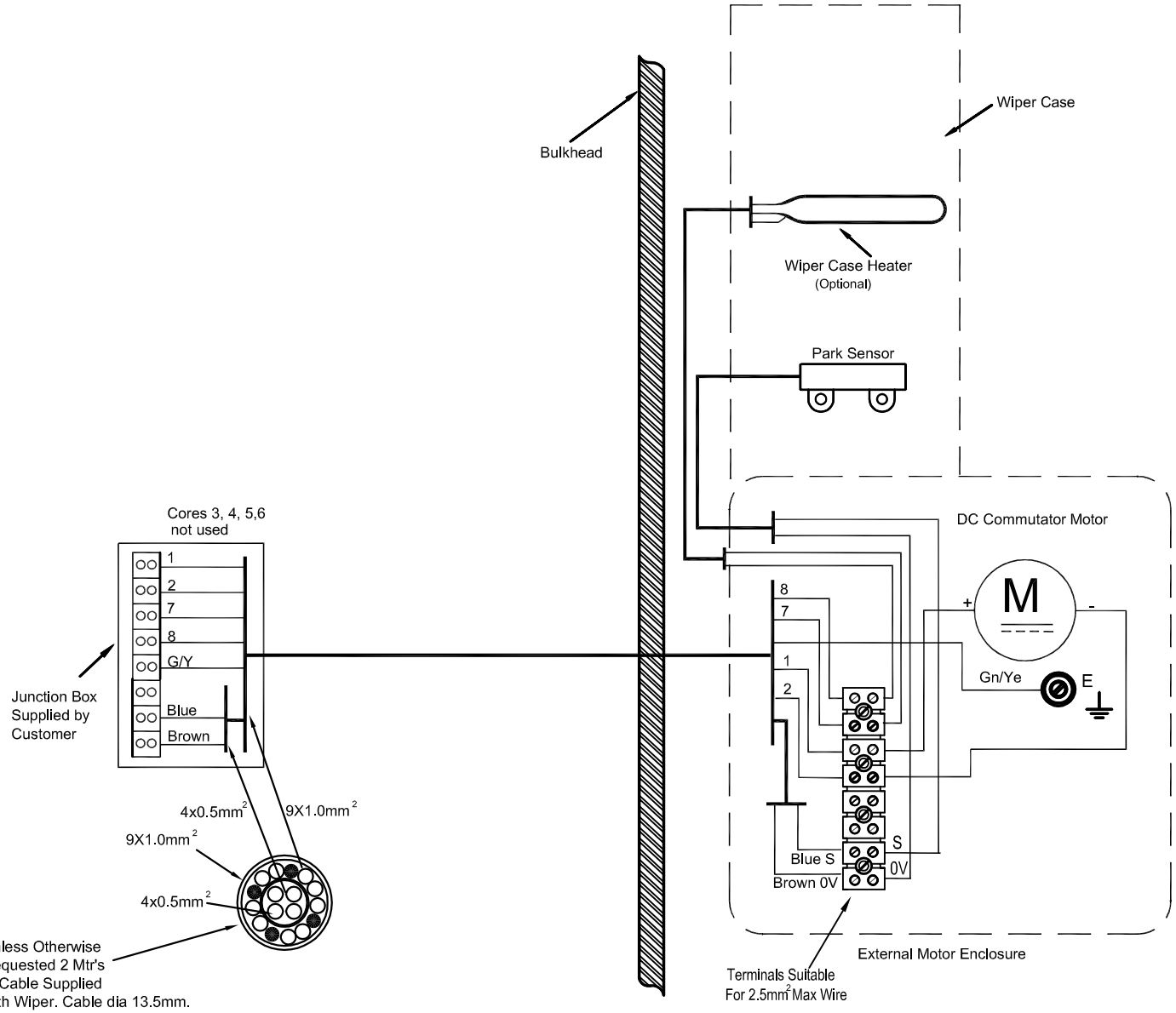


MOTOR TERMINAL BLOCK WIRING DIAGRAM
3 PHASE PARVALUX TYPE MOTORS





WIRING DIAGRAM
FOR A PARVALUX TYPE 1 PHASE MOTOR
FIT CAPACITORS AS SUPPLIED



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WYNN MARINE LIMITED

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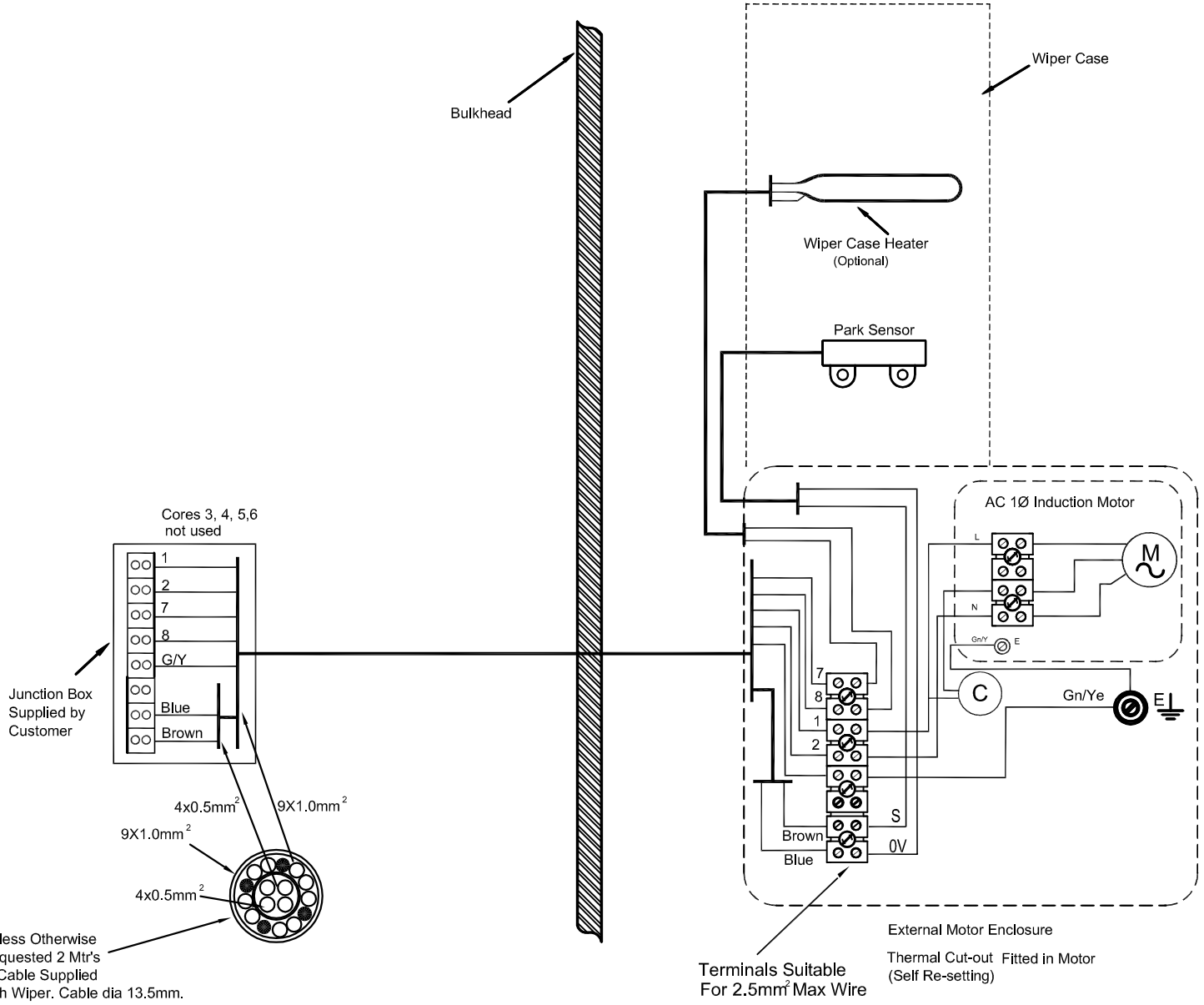
TITLE:- CONNECTION DIAGRAM
Type 'D Mk5' Wiper with a DC Motor
All Connections Through Custom Cable

DRAWING No. 4030-EL-DC-O5



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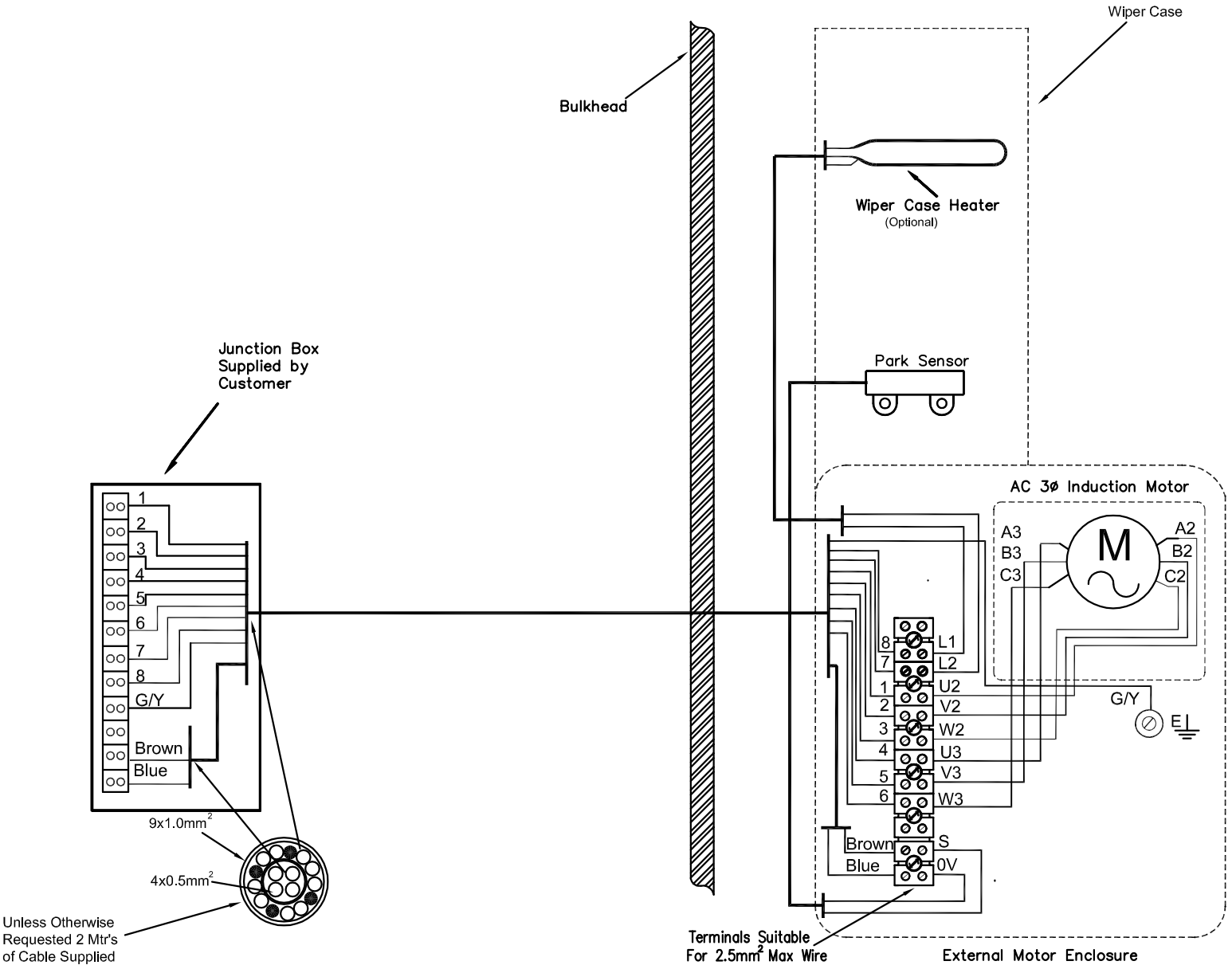
WYNN MARINE LIMITED

CHELTENHAM ENGLAND

TITLE:- CONNECTION DIAGRAM
Type 'D Mk5' Wiper with a 1 Phase AC Motor
All Connections Through Custom Cable

DRAWING No. 4030-EL-1AC-O5



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

WYNN MARINE LIMITED

CHELTENHAM ENGLAND

TITLE:- Connection Diagram for a Type 'D Mk5' Wiper with a 3 Phase Motor All Connections Through Custom Cable

DRAWING No. 4030-EL-3AC-05

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.
Bus connections incorrect.	Check wiring between modules to ensure all modules, power supply and control panel are correctly connected.
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. Idler pulley springs broken or missing. Replace.
Drive belt broken or damaged.	Inspect belt for slip or burn damage. Belt at end of life. Replace.
Idler 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 input and outputs from control module. Check ships fuses

Problem: Wiper runs but is noisy

Problem 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.	Verify power is getting to module and is available at output of module when selected.

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 D MK V Wiper Maintenance

Wynn products have been proven over many years to perform well under the harshest condition of use. To maintain their performance the following schedule is recommended:

Every 6 Months

Replace Articulated Blades.

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 Rigid Wiper Blade. Replace if necessary.
2. 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.
3. Check the drive belt for deterioration. Replace if necessary.
4. 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.

Caution: Guide rollers have an integral water lubricated bearing and MUST NOT be grease lubricated.

5. Check for free movement of idler pulleys in response to belt tension. Lubricate as necessary with water resistant grease.
6. 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.
7. Check for free blade arm spring movement. Dismantle, re-grease or replace if necessary.

Type D MK V 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.

Drive Belt

1. Undo the front casing bolts, 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.
2. Remove the blade assembly. Carefully retain the special short screws.
3. 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).
4. 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.
5. 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).
6. Fit the carriage & belt assembly back into the casing and slip the belt onto the drive & idler pulleys.
7. 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. Refit the front casing to the back casing and secure with the 2 off M8 cover bolts..

Guide Rollers

1. Follow the Drive Belt renewal instructions 1 to 3 above.
2. Remove the roller stub shaft securing the guide roller and remove the guide roller.
3. Fit the new guide roller and secure with the roller stub shaft. Ensure that roller stub shaft is tightened firmly.
4. Re-assembly is reversal of above instructions.

CAUTION: Rollers have an integral water lubricated bearing and **MUST NOT** be oil or grease lubricated.

Type D MK V Wiper Spares List

Ident	Description	Quantity	Part Number
1	Heavy Duty Blade Assembly inc clip	1	1688-001-***
	Articulated Blade Assembly inc clip	1	1279-553-***
2	Blade Attachment Clip (Stainless Steel)	1	1279-443
3	Blade Arm Assembly	1	DDSERIES
4	Blade Arm Torsion Spring	1	1292-221
4b	Blade Arm Additional Spring		1279-157
5	Blade Arm Pivot Blocks	Pair	1279-486-###
6	Arm Attachment Screws	Set of 3	1588-488
7	Carriage Plate Assembly – Without Magnet	1	1588-005
7B	Twin Tie-Bar (Twin Blade)	1	1588-303-***
8	Guide Rollers c/w Tyre	Set of 8	1588-117
	Guide Rollers c/w Tyre	1	1588-006
9	Roller Stub Shaft (one per roller)	1	1588-113
10	Connecting Rod Assembly	1	1588-004
11	Vee-Belt	1	1279-106-***
12	Idler Pulley Assembly c/w Spring (Single Blade)	1	1588-452
12	Idler Pulley Assembly c/w Spring (Twin Blade)	1	1588-452T
13	Idler Pulley Tension Spring (Single Blade)	2	1279-157
13	Idler Pulley Tension Spring (Twin Blade)	2	1279-496
14	Idler Pulley Guide Assembly	1	1588-490
15a	Parvalux 61, 115V AC, 50/60Hz, 3-Ph, 2 Speed	1	1490-000-GA61
	Parvalux 62D, 230V AC, 50/60Hz, 3-Ph, 2 Speed	1	1490-000-GA62D
	Parvalux 64, 230V AC, 50/60Hz, 1-Ph, 1 Speed	1	1490-000-GA64
	Parvalux 64, 230V AC, 50/60Hz, 1-Ph, 1 Speed	1	1490-000-GA64-L
	Parvalux 65, 115V AC, 50/60Hz, 1-Ph, 1 Speed	1	1490-000-GA65
	Parvalux 65, 115V AC, 50/60Hz, 1-Ph, 1 Speed	1	1490-000-GA65-L
15b	SD11AM 115V AC, 50 Hz, 3-Phase, 2 Speed	1	1279-347
	SD11AM 115V AC, 60 Hz, 3-Phase, 2 Speed	1	1279-348
	SD11AM 230V AC, 50/60 Hz, 3-Phase, 2 Speed	1	1279-349
15c	PM3M 24Vdc Motor	1	1279-418
	PM3M 24Vdc Motor Slow Speed	1	1279-418L
	PM5M 24Vdc Motor	1	1279-513
16	Drive Pod Assembly	1	See calculator 1681-188
17	Front Cover less Heater	1	See calculator 1681-161
18	Heater – Single Wiper	1	1588-010-$$$-^^^
	Heater Clips	a/r	1588-056
19	End Cover	1	1588-058*
21	Main Frame	1	See calculator 1681-161
24	Self Parking Assembly (Reed Switch and Magnet)	1	1588-012-*
29	Pivot Block Securing Nut	2	*NL0.25F-S

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

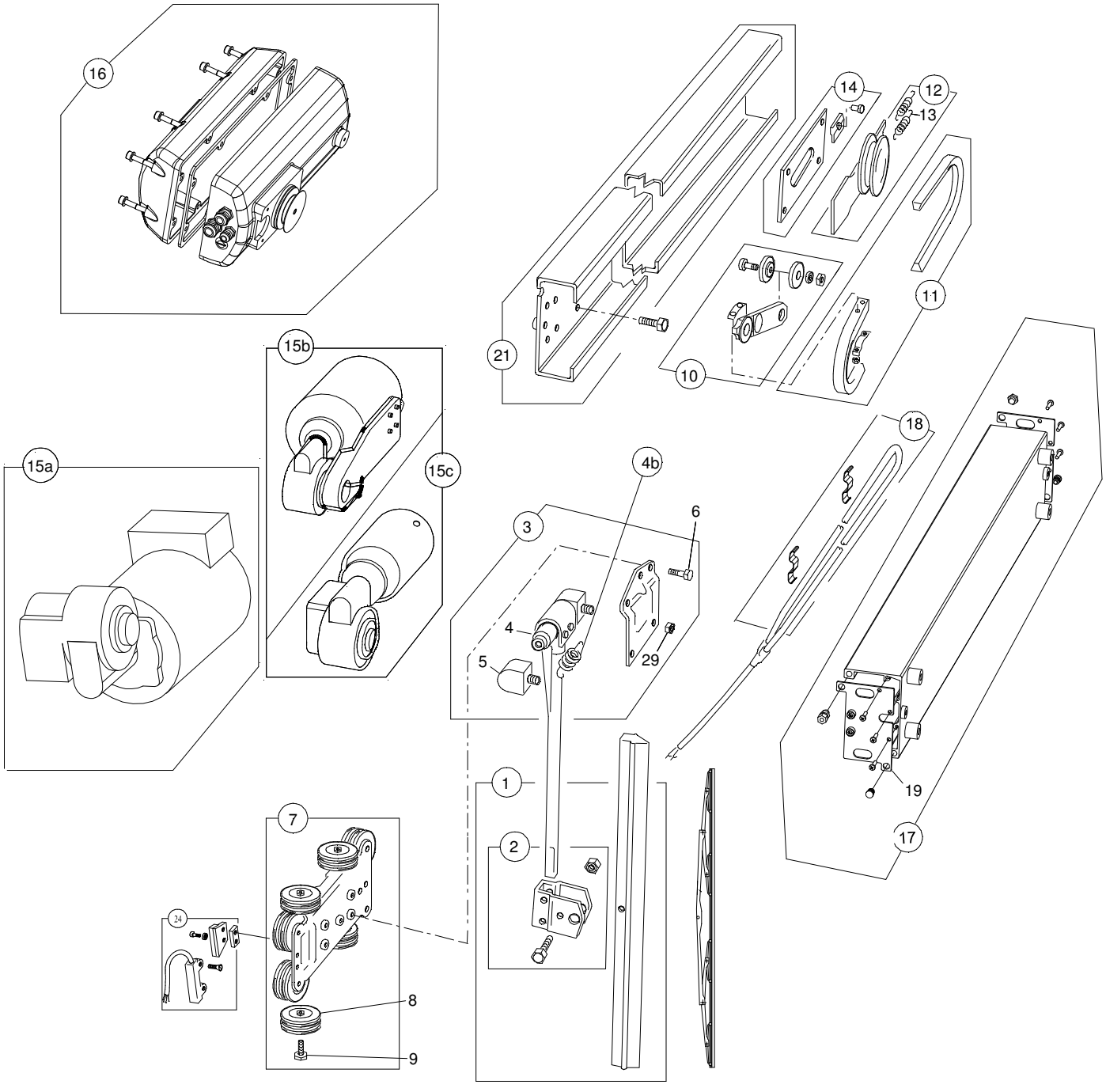
In the part number means spring pressure in lb/ft. This is determined by Wynn according to arm and blade dimensions, together with any window rake angle from the vertical. This value can also be obtained from the original order documentation. See Wynn Agent for more details.

‡ 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.

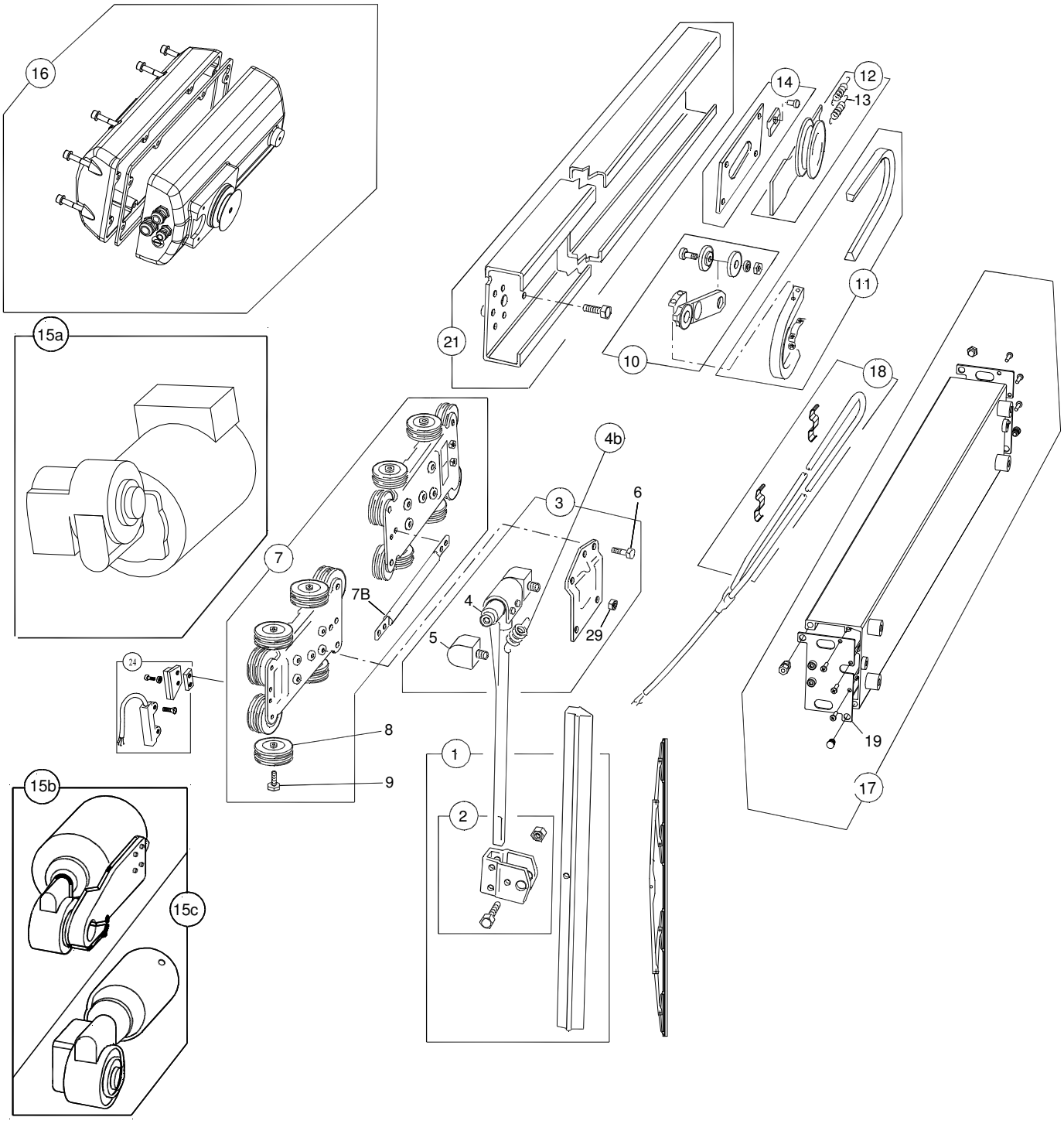
$$$ Where $$$ is voltage (220,115 or 024)

^ Where ^ is heater length code.

Type D MK V Single Spare Parts Drawing



Type D MK V Twin Spare Parts Drawing



COMPLETE WIPER PART NUMBERS

EXAMPLE NUMBER

D	5	1	1	9	B	1	A	1	C	E	B	A	1	A
*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

WIPER TYPE	CODE
D1	D1
D2	D2
D4	D4
D5	D5
C - 35mm Drive Shaft	C1
C - 84mm Drive Shaft	C2
C - 140mm Drive Shaft	C3
C - 200mm Drive Shaft	C4
C - 220mm Drive Shaft	C5
C - 84mm Gastight Drv Shft	C6
C - 140mm Gastight Drv Shft	C7
C - 200mm Gastight Drv Shft	C8

STROKE TYPE	CODE
Single	1
Twin	2
Special Twin Case (Non-std ctrs)	Q
Special Single (See Instructions)	S
Special Twin (See Instructions)	T

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 585	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 34	2 X 865	34
2 X 36	2 X 915	36
2 X 40	2 X 1015	40
2 X 41	2 X 1040	41
2 X 43	2 X 1095	43
2 X 45	2 X 1145	45
2 X 47	2 X 1195	47
2 X 49	2 X 1245	49
2 X 52	2 X 1335	52
2 X 57	2 X 1450	57
2 X 61	2 X 1560	61
2 X 67	2 X 1700	67
2 X 71	2 X 1800	71
2 X 76	2 X 1930	76
2 X 79	2 X 2005	79
SPECIAL TWIN		ST

(for twins , eg: 2x24" is shown as 24 with the 2 being stated at the previous part number digit)

SINGLE STROKE LENGTH CODE	
INCHES	MM
12	305
15	350
17	430
19	480
21	533
23	585
25	635
27	685
29	735
31	787
33	840
35	890
36	915
37	940
39	990
41	1040
43	1095
45	1145
47	1195
49	1245
51	1295
53	1335
55	1400
57	1450
59	1500
61	1560
63	1605
67	1700
71	1800
76	1930
79	2005
89	2260

HEATER	CODE
No Heater	0
24v Heater	A
115v Heater	B
220v Heater	C

HEATER CABLE LENGTH	CODE
Not Supplied	0
2 Metres	1
3 Metres	7
5 Metres	2
6 Metres	8
10 Metres	3
20 Metres	4
25 Metres	5
Terminated in Enclosure	6

PARKING	CODE
Parking Not Fitted	0
Standard Drive End Parking	
Normally open) Reed Switch (TYPE D)	- A
Normally open) Reed Switch (TYPE C)	- B
Non-Standard Drive End Parking	
Proximity Switch (TYPE D)	- G
Reed Switch Change over (Special Type C)	- C
Standard Idler End Parking	
Normally open) Reed Switch (TYPE D)	- D
Normally Open) Reed Switch (Type C))	- E
Non-Standard Idler End Parking	
Proximity Switch (Type D)	- H
Reed Switch c/over (Special Type C)	- F

PARKING CABLE LENGTH	CODE
Not Supplied	0
2 Metres	1
3 Metres	7
5 Metres	2
6 Metres	8
10 Metres	3
20 Metres	4
25 Metres	5
Terminated in Enclosure	6

Wiper Type	Motor Type		Code
MOTOR NOT SUPPLIED			MO
NO POD			00
B/C/D	115vac 1ph 50/60hz 1Sp	GA65	CA
C/D	115vac 1ph 50/60hz Low Sp	GA65-L	CB
B	115vac 1ph 50hz Var Sp	SD 11	CC
B	115vac 1ph 60hz Var Sp	SD11	CD
B/C/D	115vac 3ph 50/60hz 2Sp	GA61	CE
C	115vac 3ph 50/60hz 2Sp IP23	GA61-IP23	CF
B/C/D	115vac 3ph 50/60hz 1Sp	GA63	CG
B/C/D	230vac 1ph 50/60hz 1Sp	GA64	CH
C/D	230vac 1ph 50/60hz Low Sp	GA64L	CJ
B	230vac 1ph 50/60hz Var Sp	SD11	CK
C	230vac 1ph 50/60hz 1Sp IP23	GA64-IP23	CL
B/C/D	230vac 3ph 50/60hz 2Sp	GA62D	CM
B/C/D	230vac 3ph 50/60hz 1Sp	GA68	CN
C/D2	24vdc 320rpm 90W (1279-051)	PM3	CP
C/D2	24vdc 320rpm 150W (1279-513)	PM5	CR
D5	24vdc 320rpm 90W (1279-557)	PM3	CS
D5	24vdc 320rpm 150W (1279-555)	PM5	CT
C	230vac 3ph 50/60hz 2Sp	GA62D-IP23-E (emc)	CV
C	100vac 1ph 1sp	GA69	CW
C/D	414vac 3ph 50/60hz 2 Sp		CX
D5/C	24vdc **162rpm** SLOW (1279-557L)	PM3	CY
C/D2	Pneumatic Drive Motor		PN

PAINT FINISH	CODE
Standard White	A
Ad Light Grey BS381C/697	B
Munsell N9.5	C
R84890 Haze Grey	D
RAL 7001	E
Storm Grey	F
Int Paint H725	G
French Gry J724 BS381C/ 630	H
Light Grey BS381C/631	J
RAL 7000 Navy Grey) (Bruno Peter Type 76))	K
Cream 20320	L
Yellow RAL 1003	M
Int Paint E459	N
Black Dull RAL 9005	P
Canadian Grey CL1647	R
RAL 7037 Dusty Grey	T
Special Paint (see special instructions)	S

SPRAY	CODE
No Spray	0
Std Spray Fitted	1
Spray Std + Banjo	2
Spray Jet S/Steel	3
150mm Spray Jet	4

MOTOR CABLE LENGTH	MULTIPLE CABLES (D)	SINGLE CABLE (D)	TYPE C
Not Supplied	A	A	A
2 Metres	B	K	S
3 Metres	X	Y	G
5 Metres	C	L	T
6 Metres			Z
10 Metres	D	M	U
12 Metres		H	
15 Metres		R	
20 Metres	E	N	V
25 Metres	F	P	W

MOTOR POSITION (viewed from outside)	CODE
Above Window Left	A
Above Window Right	B
Below Window Left	C
Below Window Right	D
Left Side Window Top	E
Right Side Window Top	F
Left Side Window Bttm	G
Right Window Bottom	H

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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°

ISS.	DIN	DATE	ISS.	DIN	DATE	ISS.	DIN	DATE	MOD STATUS
15	203	11.07.07	10	609	22.11.05	20	289	22.07.08	
14	160	08.02.07	9	607	21.11.05	19	281	17.06.08	
13	149	08.01.07	8	604	18.11.05	18	266	05.03.08	
12	092	07.06.06	7	547	25.10.05	17	252	16.01.08	
11	025	23.02.06	6	514	04.10.05	16	225	12.10.07	

MAT'L:-

FINISH:-

SCALE:-

DRAWN:- DD

CHKD:-

CHANGED:- DD

USED ON:

Wynn MARINE LIMITED
CHELTENHAM ENGLAND

TITLE:- STRAIGHT LINE WIPER UNIT PART NUMBER OPTIONS

DRAWING No. 1681-161

SPARES ORDERING

EXAMPLE NUMBER

D	5	1	1	1	9	B	1	A	1	1	A	1
*	*	*	*	*	*	*	*	*	*	*	*	*

WIPER TYPE	CODE
D1	-D1
D2	-D2
D4	-D4
D5	-D5
C	-C1

COVER / CASE	CODE
COVER	-1
CASE	-2
COVER old style C	-3

STROKE TYPE	CODE
Single	1
Twin	2
Special Twin Case (Non-std ctrs)	Q
Special Single (See Instructions)	S
Special Twin (See Instructions)	T

SINGLE STROKE LENGTH CODE	
INCHES	MM
12	305
15	350
17	430
19	480
21	533
23	585
25	635
27	685
29	735
31	787
33	840
35	890
37	940
39	990
41	1040
43	1095
45	1145
47	1195
49	1245
51	1295
53	1335
55	1400
57	1450
59	1500
61	1560
63	1605
67	1700
71	1800
76	1930
79	2005
89	2260

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 585	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 34	2 X 865	34
2 X 36	2 X 915	36
2 X 40	2 X 1015	40
2 X 41	2 X 1040	41
2 X 43	2 X 1095	43
2 X 45	2 X 1145	45
2 X 47	2 X 1195	47
2 X 49	2 X 1245	49
2 X 52	2 X 1335	52
2 X 57	2 X 1450	57
2 X 61	2 X 1560	61
2 X 67	2 X 1700	67
2 X 71	2 X 1800	71
2 X 76	2 X 1930	76
2 X 79	2 X 2005	79
SPECIAL TWIN		ST

(for twins , eg: 2x24" is shown as 24 with the 2 being stated at the previous part number digit)

HEATER	CODE
No Heater	-0
24v Heater	-A
115v Heater	-B
220v Heater	-C

NOTE:
HEATERS FITTED TO COVERS ONLY

HEATER CABLE LENGTH	CODE
Not Supplied	-0
2 Metres	-1
3 Metres	-7
5 Metres	-2
6 Metres	-8
10 Metres	-3
20 Metres	-4
25 Metres	-5
Terminated in Enclosure	-6

WIPER SPARE CASE/COVER PART NUMBERS

PARKING CABLE LENGTH	CODE
Not Supplied	-0
2 Metres	-1
3 Metres	-7
5 Metres	-2
6 Metres	-8
10 Metres	-3
20 Metres	-4
25 Metres	-5

PARKING	CODE
Parking Not Fitted	0

Standard Drive End Parking

Normally open) - A
Reed Switch (TYPE D)

Normally open) - B
Reed Switch (TYPE C)

Non-Standard Drive End Parking

Proximity Switch (TYPE D) - G

Reed Switch Change over - C
(Special Type C)

Standard Idler End Parking

Normally open) - D
Reed Switch (TYPE D)

Normally Open) - E
Reed Switch (Type C))

Non-Standard Idler End Parking

Proximity Switch (Type D) - H

Reed Switch c/over - F
(Special Type C)

PAINT FINISH	CODE
Standard White	A
Admiralty Light Grey	B
Munsell N9.5	C
R84890 Haze Grey	D
RAL 7001	E
Storm Grey	F
Int Paint H725	G
French Grey J724	H
Light Grey BS381C	J
RAL 7000 Navy Grey)	K
(Bruno Peter Type 76))	
Cream 20320	L
Yellow RAL 1003	M
Int Paint E459	N
Black Dull RAL 9005	P
Canadian Grey CL1647	R
RAL 7037 Dusty Grey	T
Special Paint (see special instructions)	S

SPRAY	CODE
No Spray	-0
Std Spray Fitted	-1
Spray Std + Banjo	-2
Spray Jet S/Steel	-3
150mm Spray Jet	-4

NOTE:
SPRAY FITTED TO COVERS ONLY.
NO SPRAY ON 80, B OR 48

CABLE EXIT	CODE
Not Supplied	-0
LEFT	-1
RIGHT	-2
(above window)	

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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:-

FINISH:-

ISS.	DIN	DATE	ISS.	DIN	DATE	ISS.	DIN	DATE	MOD STATUS
15	203	11.07.07	10	609	22.11.05	20	289	22.07.08	
14	160	08.02.07	9	607	21.11.05	19	281	17.06.08	
13	149	08.01.07	8	604	18.11.05	18	266	05.03.08	
12	092	07.06.06	7	547	25.10.05	17	252	16.01.08	
11	025	23.02.06	6	514	04.10.05	16	225	12.10.07	

SCALE:- DRAWN:- DD CHKD:- CHANGED:-

USED ON:

Wynn MARINE LIMITED
CHELTENHAM ENGLAND

TITLE:- STRAIGHT LINE WIPER COVER/CASE SPARES PART NUMBER OPTIONS

DRAWING No. 1681-161

THIS GIVES THE PART No FOR A COMPLETE MOTOR POD

* * M P * * * * * * * * *

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
25 Metres	5
Terminated in Enclosure	6

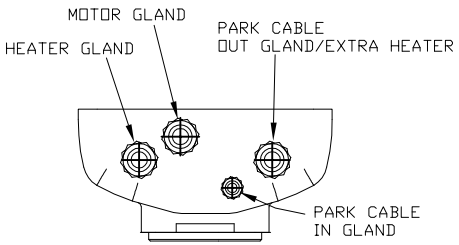
Wiper Type	Motor Type	Code
MOTOR NOT SUPPLIED		MO
115vac 1ph 50/60hz 1Sp	GA65	CA
115vac 1ph 50/60hz Low Sp	GA65-L	CB
115vac 3ph 50/60hz 2Sp	GA61	CE
115vac 3ph 50/60hz 1Sp	GA63	CG
230vac 1ph 50/60hz 1Sp	GA64	CH
230vac 1ph 50/60hz Low Sp	GA64L	CJ
230vac 3ph 50/60hz 2Sp	GA62D	CM
230vac 3ph 50/60hz 1Sp	GA68	CN
D2	24vdc 320rpm 90W (1279-051) PM3	CP
D2	24vdc 320rpm 150W (1279-513) PM5	CR
D5	24vdc 320rpm 90W (1279-557) PM3	CS
D5	24vdc 320rpm 150W (1279-555) PM5	CT
D5	24vdc **162rpm** SLOW (1279-557L) PM3	CY
D2	Pneumatic Drive Motor	PN

PAINT FINISH	CODE
Standard White	A
Admiralty Light Grey	B
Munsell N9.5	C
R84890 Haze Grey	D
RAL 7001	E
Storm Grey	F
Int Paint H725	G
French Grey J724	H
Light Grey BS381C	J
RAL 7000 Navy Grey	K
Cream 20320	L
Yellow RAL 1003	M
Int Paint E459	N
Black Dull RAL 9005	P
Canadian Grey CL1647	R
Special Paint (see special instructions)	S

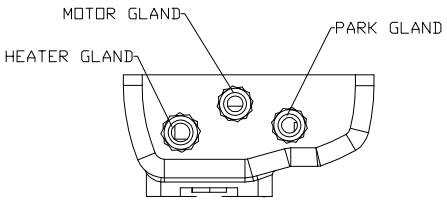
PARKING	CODE
Parking Not Fitted	0
Standard Drive End Parking	
Normally open) Reed Switch (TYPE D)	A
Proximity Switch (Std D)	G
Non Standard Idler End Parking	
Normally open) Reed Switch (TYPE D)	D
Proximity Switch (Type D)	H

MOTOR CABLE LENGTH	MULTIPLE CABLES (D)	SINGLE CABLE (D)
Not Supplied	A	A
2 Metres	B	K
3 Metres	X	Y
5 Metres	C	L
6 Metres		
10 Metres	D	M
12 Metres		H
15 Metres		R
20 Metres	E	N
25 Metres	F	P

MOTOR TYPE	HEATER TERMINATED IN MOTOR POD	CABLE TYPE	PARKING TYPE	MOTOR GLAND	HEATER GLAND	PARK OUT GLAND	PARK IN GLAND	CODE
DC & 1PH	HEATER NOT TERMINATED	MULTIPLE CABLE	REED SW	PG 13.5	BLANK	BLANK	BLANK	001
3PH	HEATER TERMINATED	MULTIPLE CABLE	REED SW	PG 21	PG 13.5	BLANK	BLANK	002
DC & 1PH	HEATER NOT TERMINATED	SINGLE CABLE	REED SW	PG 16	BLANK	BLANK	PG 9	003
3PH	HEATER NOT TERMINATED	SINGLE CABLE	REED SW	PG 16	BLANK	BLANK	PG 9	003
DC & 1PH	HEATER TERMINATED	SINGLE CABLE	REED SW	PG 16	PG 13.5	BLANK	PG 9	004
3PH	HEATER TERMINATED	SINGLE CABLE	REED SW	PG 16	PG 13.5	BLANK	PG 9	004
3PH	HEATER NOT TERMINATED	MULTIPLE CABLE	REED SW	PG 16	BLANK	BLANK	BLANK	005
DC & 1PH	HEATER TERMINATED	MULTIPLE CABLE	REED SW	PG 16	PG 13.5	BLANK	BLANK	006
	OLD STYLE GLAND FORMAT	SINGLE CABLE	REED SW	PG 16	PG 13.5	BLANK	PG 9	004
				PG 16	BLANK	PG11		008
	SPECIAL	MULTIPLE CABLE	REED SW	PG 21	PG 16	PG 16	PG9	009
	TWIN HEATERS TERMINATED	SINGLE CABLE	REED SW	PG 16	PG 13.5	PG 13.5	PG9	010
DC & 1PH	OLD STYLE GLAND FORMAT	MULTIPLE CABLE	REED SW	PG 21	PG 16	PG 13.5	BLANK	011
DC & 1PH	HEATER NOT TERMINATED	MULTIPLE CABLE	PROX SW	BLANK	PG 13.5	PG 13.5	BLANK	012
3PH	HEATER TERMINATED	MULTIPLE CABLE	PROX SW	PG 21	PG 13.5	PG 13.5	BLANK	013
DC & 1PH	HEATER NOT TERMINATED	SINGLE CABLE	PROX SW	PG 16	BLANK	BLANK	BLANK	005
3PH	HEATER NOT TERMINATED	SINGLE CABLE	PROX SW	PG 16	BLANK	BLANK	BLANK	005
DC & 1PH	HEATER TERMINATED	SINGLE CABLE	PROX SW	PG 16	PG 13.5	BLANK	BLANK	006
3PH	HEATER TERMINATED	SINGLE CABLE	PROX SW	PG 16	PG 13.5	BLANK	BLANK	006
3PH	HEATER NOT TERMINATED	MULTIPLE CABLE	PROX SW	PG 16	BLANK	PG 13.5	BLANK	014
DC & 1PH	HEATER TERMINATED	MULTIPLE CABLE	PROX SW	PG 16	PG 13.5	PG 13.5	BLANK	015
	OLD STYLE GLAND FORMAT	SINGLE CABLE	PROX SW	PG 16	PG 13.5	BLANK	BLANK	006
				PG 16	BLANK	PG11		008
	SPECIAL	MULTIPLE CABLE	PROX SW	PG 21	PG 16	PG 16	BLANK	016
	TWIN HEATERS TERMINATED	SINGLE CABLE	PROX SW	PG 16	PG 13.5	PG 13.5	BLANK	015
DC & 1PH	OLD STYLE GLAND FORMAT	MULTIPLE CABLE	PROX SW	PG 21	PG 16	PG 13.5	BLANK	011
VARIOUS	'EX' HEATER TERMINATED	SINGLE CABLE	REED SW	PG 16	NONE	BLANK	PG 9	EX4



MOTOR BASE 4030-073



MOTOR BASE 4030-063

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

CAD FILENAME + DIRECTORY M:\DRAW\1681\1681-188

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°

ISS.	DIN	DATE
8	289	22.07.08
7	217	05.09.07
6	203	03.07.07
5	185	30.04.07
4	160	08.02.07
3	092	07.06.06
2	075	04.05.06
1	025	8.12.05

MOD STATUS

MAT'L:-
FINISH:-
SCALE:-
DRAWN:- DD
CHKD:-
CHANGED:-

Wynn MARINE LIMITED
CHELTENHAM ENGLAND

TITLE:- STRAIGHT LINE WIPER COMPLETE MOTOR POD PART NUMBER OPTIONS

DRAWING No. 1681-188

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 ware 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.

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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Welcome to the world of Observator

Since 1924 Observator has evolved to be a trend-setting developer and supplier in a wide variety of industries. Originating from the Netherlands, Observator has grown into an internationally oriented company with a worldwide distribution network and offices in Australia, Germany, the Netherlands, Singapore and the United Kingdom.

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