



**ISO 9001: 2015**

**ARTIFICIAL LIMBS MANUFACTURING CORPORATION OF INDIA**  
(A GOVERNMENT OF INDIA UNDERTAKING MINIRATNA COMPANY)  
UNDER MINISTRY OF SOCIAL JUSTICE & EMPOWERMENT  
AN ISO 9001:2008 COMPANY, G T ROAD, KANPUR- 209217  
E-mail: [alimco@alimco.in](mailto:alimco@alimco.in), Website: [www.alimco.in](http://www.alimco.in)  
Phone No.: 0512-2770172, Fax No. 0512-2770617



## **NOTICE**

As per instruction of competent authority, New Technical specification framed for Retrofit Kit used in Battery Operated Motorized Tricycle designated as NY 30 (Retrofit Kit Hub Drive System DC 24 V, 250W, 36 Holes for Spokes with Disc Brake, Forward and Reverse Drive) and specifications are appended herewith to this notice.

Suggestions/Comments on the above revised specification, if any, are invited from all the concerned within 7 days from the date of hosting of this Notice on our website for consideration by Corporation.

The observation/objections, if any, may be sent to email: [manager\\_dd@alimco.in](mailto:manager_dd@alimco.in) in latest by 14/06/2019 up to 17.30 Hrs.



**MANAGER (DD), ALIMCO, KANPUR**

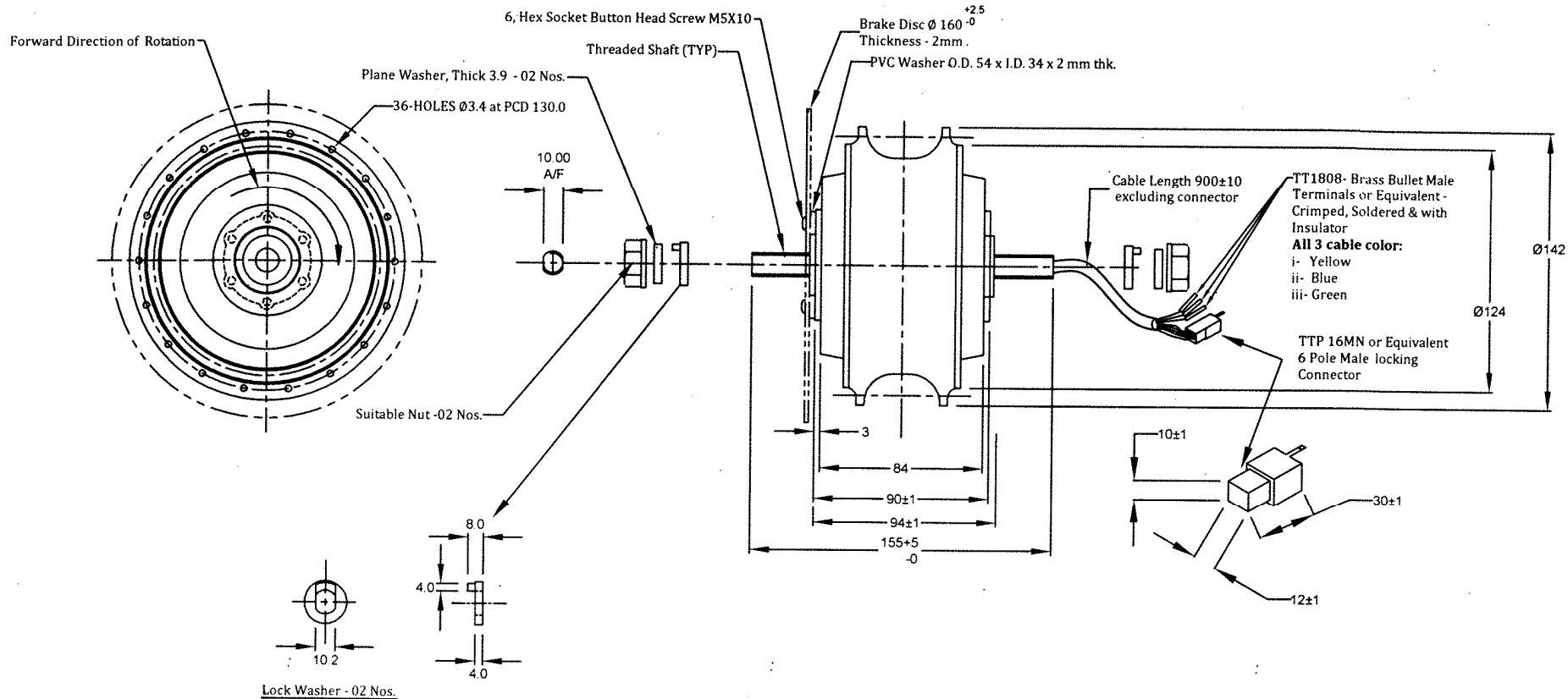
CODE No. NY30 - RETRO FIT KIT HUB DRIVE SYSTEM, DC 24V, 250W, 36 HOLES  
FOR SPOKES WITH DISC BRAKE, FORWARD & REVERSE DRIVE  
CONTAINING :-

SL.NO.	DRAWING NO.	NOMENCLATURE	Qty.
1.	LM20	HUB DRIVE MOTOR DC 24V, 250WATT, 36 HOLE FOR SPOKE WITH FORWARD AND REVERSE DRIVE FEATURE	01 SET
2.	LM21	BRUSHLESS DC MOTOR CONTROLLER WITH REVERSE DRIVE	01 SET
3.	LM22	ACCELERATOR WITH BRAKE LEVER & FORWARD-REVERSE DRIVE SWITCH	01 SET
4.	LM23	MAIN WIRING WITH FUSE HOLDER	01 SET
5.	LM24	BATTERY WIRING WITH CONVERTER	01 SET
6.	LM25	REAR LIGHT INDICATOR ASSY RIGHT & LEFT WITH FLASHER	01 SET (02 Nos.)
7.	LM26	FRONT LIGHT ASSY	01 SET
8.	LM27	HANDLE BAR SWITCH ASSEMBLY FOR HORN, LIGHT & INDICATOR	01 SET
9.	LK29	ON/OFF SWITCH USED IN BATTERY BOX	01 SET
10.	LK34	HORN 12VDC	01 SET
11.	LK88	BATTERY BOX ASSEMBLY	01 SET
12.	LK23	SPOKE ASSY FOR HUB DRIVE MOTOR $\phi 2.6\text{mm}(12\text{g})$ FOR 26"x2.125" WHEEL WITH 36 HOLES	36 NOS.

**Note:-**

- Each & every items mentioned above will be fixed on the chassis of our Tricycle & tested before supply. In any case if any items found not fixable & fails in testing the complete Retro Fit Kit will be rejected.
- Each and every items shall be tested by Supplier and marked as 'Tested' with good quality printed sticker.
- One Year guarantee for all the above mentioned items.

SNo.	REGION	REVISION	DATE	SIGN
R E V I S I O N S				
 ARTIFICIAL LIMBS MANUFACTURING CORPORATION OF INDIA KANPUR 				
DGN	ASHISH	NOM	INDICATED	
DRN		MTL		
CHD		TOL	INTEGER ONLY $\pm 0.500$ mm ONE PLACE DECIMAL $\pm 0.250$ mm TWO PLACE DECIMAL $\pm 0.125$ mm UNLESS SPECIFIED	
DIM	IN/mm	FIN		
SCALE	NTS			
APP		ORG No.	NY 30	
DATE	20.05.19		SHEET 10F1	

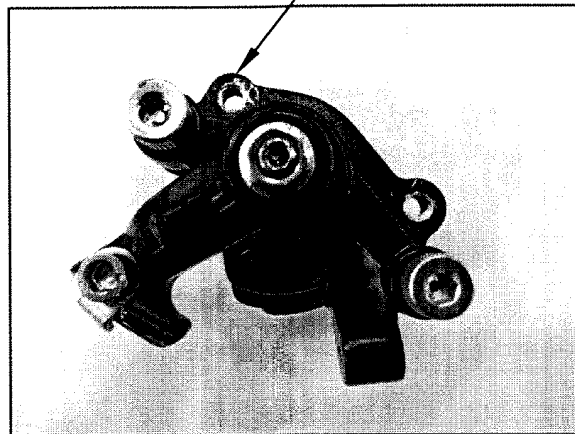


**NOTE:-**

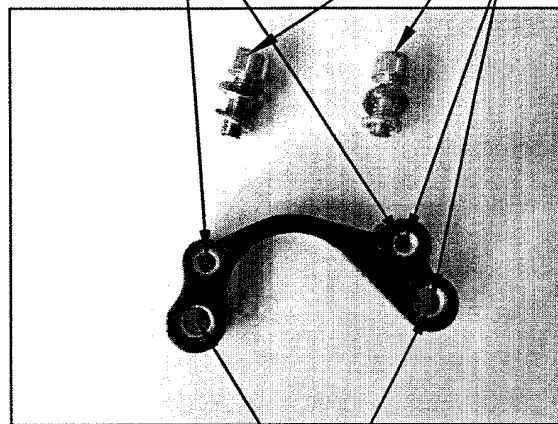
1. Hub Drive Motor will be supplied with required connectors & it should be fixable with connectors of Controller (LM21).
2. Working of all three together Hub Drive Motor (LM20), Controller (LM21) and Accelerator with Brake Levers & Forward-Reverse Drive switch (LM22) shall be checked to ensure functioning of all three properly.
3. Complete Motor body should be waterproof.

B.O. No.	NOMENCLATURE WITH SPECIFICATION	Qty.
LM 20	<b>Hub Drive Motor DC 24V, 250Watt, 36 Holes for Spokes with forward &amp; reverse motion feature.</b> <ol style="list-style-type: none"> <li>Motor will be supplied along with Brake disc &amp; caliper, required fasteners &amp; with two rubber cap for nuts.</li> <li>Outgoing Motor cable length = 900±10mm (Excluding connector)</li> <li>Copper wires shall be used for windings</li> <li>Hub Drive Motor RPM (Test with be conducted of using given controller &amp; throttle)                             <ul style="list-style-type: none"> <li>Forward RPM (No Load) = 200±10</li> <li>Reverse RPM (No Load) = 100±10</li> </ul> </li> <li>Supplier may have to interchange position of wire inside connector if required.</li> </ol>	01Set

SNo.	REGION	REVISION	DATE	SIGN
<b>REVISIONS</b> ARTIFICIAL LIMBS MANUFACTURING CORPORATION OF INDIA KANPUR				
DGN		NOM		INDICATED
DRN		MTL		
CHD		HEAT		
DIM	IN mm	TREATMENT		
SCALE		SURFACE		
APP		TREATMENT		
DATE	20.05.2019	ORG No:-	INDICATED	SHEET 1 OF 2



Caliper Assembly for Disc Brake



Mounting Adapter

2 Nos. Hex Socket Head Screw M6  
2 Nos. Plane Washer Thick 1.5mm  
2 Nos. Spring Washer Thick 2mm } To be used for Mounting

Centre Distance Between two holes-16 mm

8.0 to 10mm Thickness



Hole of  $\phi$  7(typ) & Centre Distance Between two holes-60 mm

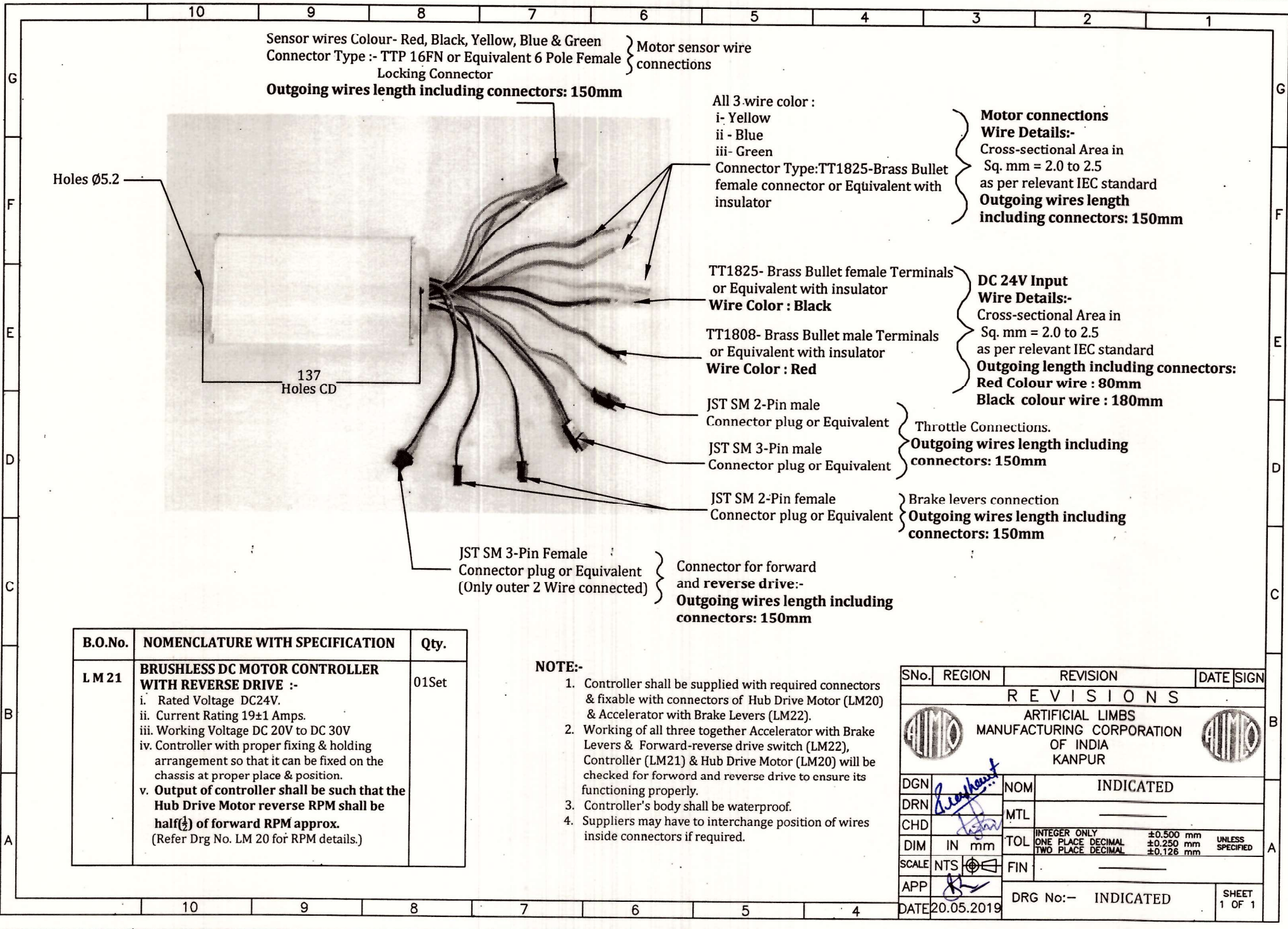
Code No.	Nomenclature
-----	Caliper Assy for Disc Brake: Specification:-
	i. Material - Aluminium alloy
	ii. Colour - Black
	iii. Suitable for 160mm brake disc
	iv. Length: approx. 7.4cm/2.9inch
	v. Will be supplied along with all kind of fastenres including mounting fasteners.
	vi. Weight - 240 $\pm$ 10gms

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SNo.	REGION	REVISION	DATE	SIGN
REVISIONS				
ARTIFICIAL LIMBS MANUFACTURING CORPORATION OF INDIA KANPUR				
DGN		NOM		Indicated
DRN		MTL		Indicated
CHD		HEAT		
DIM	IN mm	TREATMENT		
SCALE		SURFACE		
APP		TREATMENT		
DATE	20-05-19	DRG No:-		

SHEET  
2 OF 2





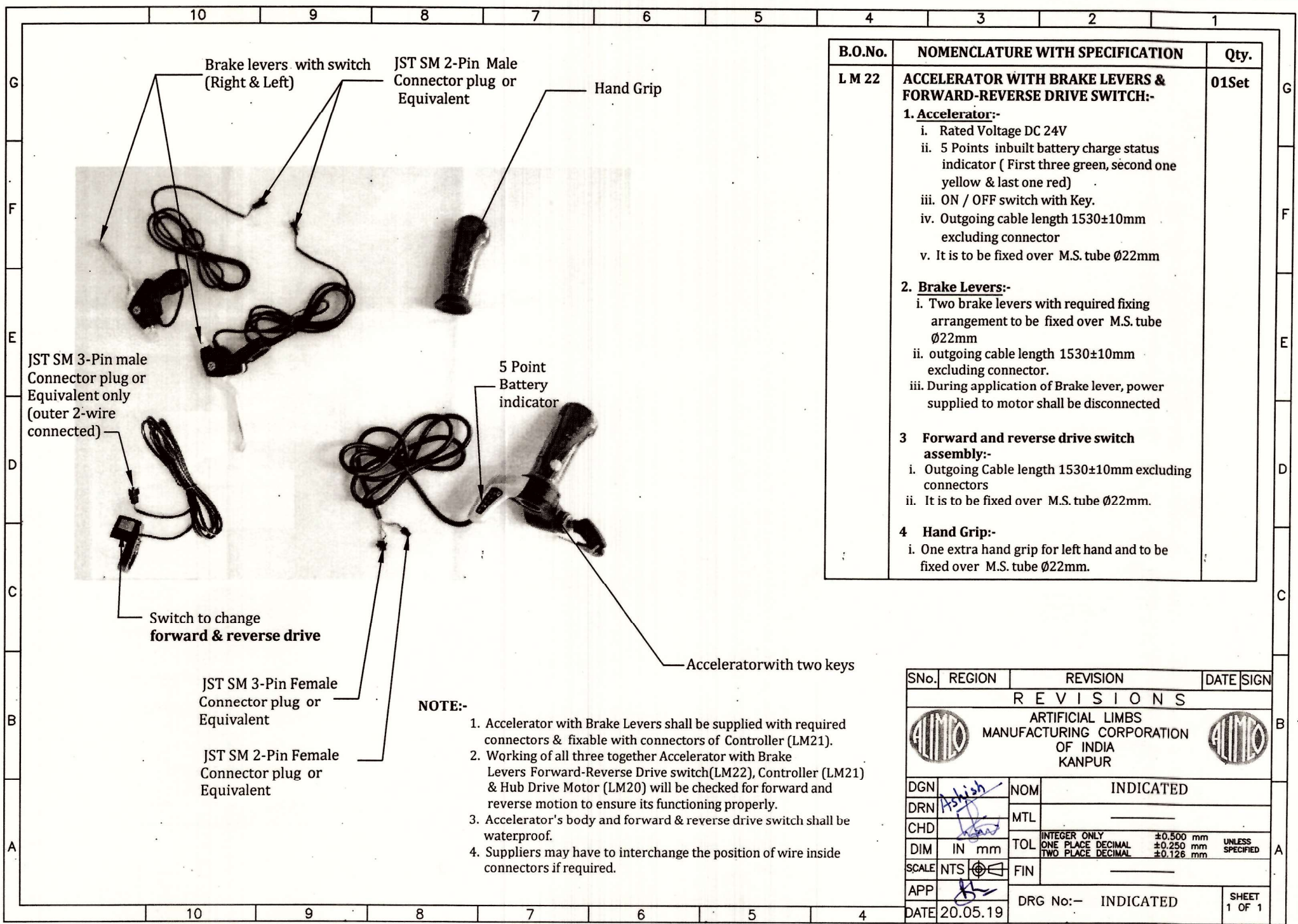
B.O.No.	NOMENCLATURE WITH SPECIFICATION	Qty.
LM 21	<b>BRUSHLESS DC MOTOR CONTROLLER WITH REVERSE DRIVE :-</b> i. Rated Voltage DC24V. ii. Current Rating 19±1 Amps. iii. Working Voltage DC 20V to DC 30V iv. Controller with proper fixing & holding arrangement so that it can be fixed on the chassis at proper place & position. v. Output of controller shall be such that the Hub Drive Motor reverse RPM shall be half(½) of forward RPM approx. (Refer Drg No. LM 20 for RPM details.)	01Set

**NOTE:-**

1. Controller shall be supplied with required connectors & fixable with connectors of Hub Drive Motor (LM20) & Accelerator with Brake Levers (LM22).
2. Working of all three together Accelerator with Brake Levers & Forward-reverse drive switch (LM22), Controller (LM21) & Hub Drive Motor (LM20) will be checked for forward and reverse drive to ensure its functioning properly.
3. Controller's body shall be waterproof.
4. Suppliers may have to interchange position of wires inside connectors if required.

SNo.	REGION	REVISION	DATE	SIGN
<b>REVISIONS</b> ARTIFICIAL LIMBS MANUFACTURING CORPORATION OF INDIA KANPUR				
DGN		NOM	INDICATED	
DRN		MTL		
CHD		TOL		
DIM	IN mm	INTEGER ONLY	±0.500 mm	UNLESS SPECIFIED
SCALE	NTS	ONE PLACE DECIMAL	±0.250 mm	
APP		TWO PLACE DECIMAL	±0.126 mm	
DATE	20.05.2019	FIN		
DRG No:- INDICATED				SHEET 1 OF 1





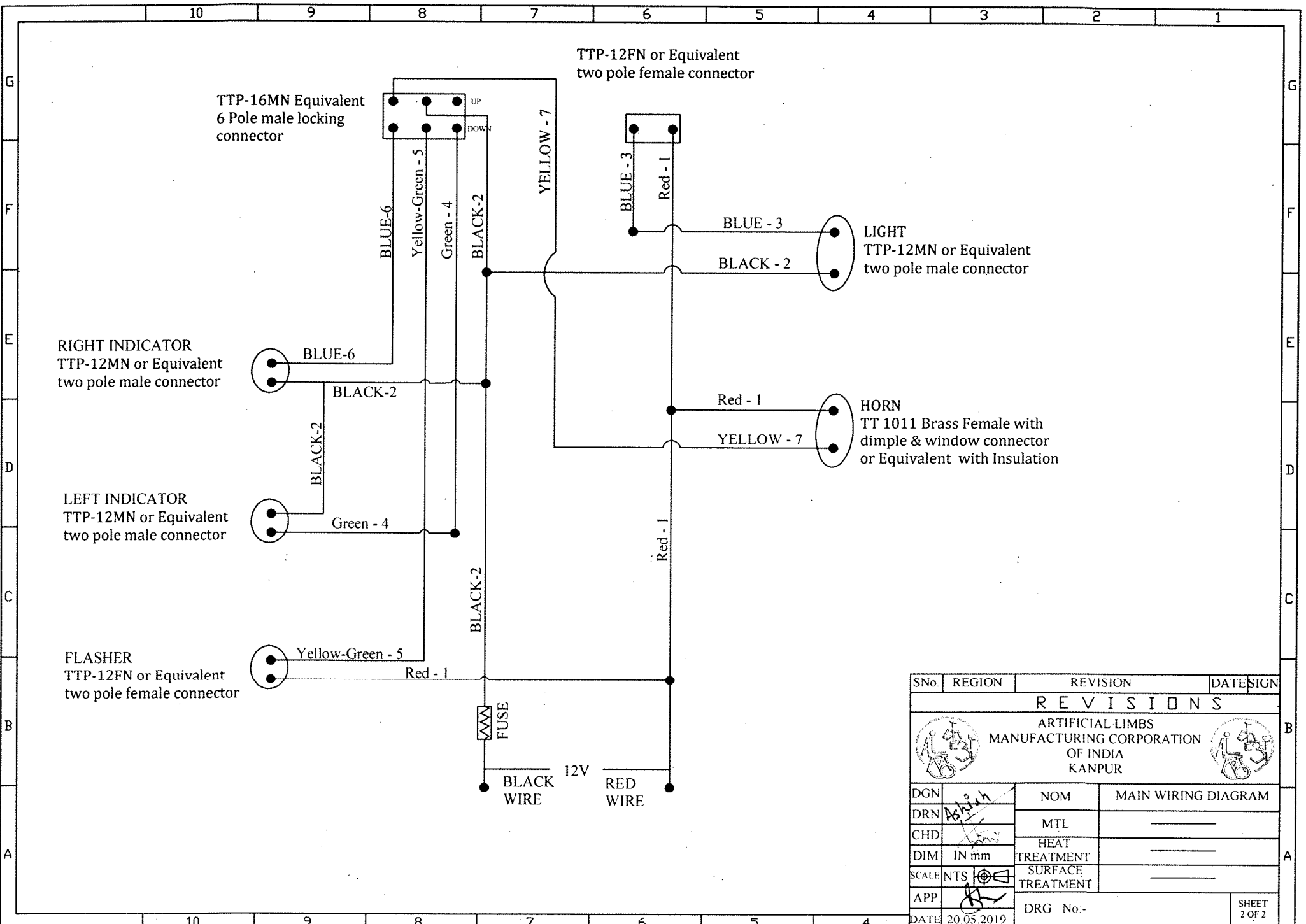
B.O.No.	NOMENCLATURE WITH SPECIFICATION	Qty.
L M 22	<b>ACCELERATOR WITH BRAKE LEVERS &amp; FORWARD-REVERSE DRIVE SWITCH:-</b> <b>1. Accelerator:-</b> i. Rated Voltage DC 24V ii. 5 Points inbuilt battery charge status indicator ( First three green, second one yellow & last one red) iii. ON / OFF switch with Key. iv. Outgoing cable length 1530±10mm excluding connector v. It is to be fixed over M.S. tube Ø22mm <b>2. Brake Levers:-</b> i. Two brake levers with required fixing arrangement to be fixed over M.S. tube Ø22mm ii. outgoing cable length 1530±10mm excluding connector. iii. During application of Brake lever, power supplied to motor shall be disconnected <b>3 Forward and reverse drive switch assembly:-</b> i. Outgoing Cable length 1530±10mm excluding connectors ii. It is to be fixed over M.S. tube Ø22mm. <b>4 Hand Grip:-</b> i. One extra hand grip for left hand and to be fixed over M.S. tube Ø22mm.	01Set

**NOTE:-**

1. Accelerator with Brake Levers shall be supplied with required connectors & fixable with connectors of Controller (LM21).
2. Working of all three together Accelerator with Brake Levers Forward-Reverse Drive switch(LM22), Controller (LM21) & Hub Drive Motor (LM20) will be checked for forward and reverse motion to ensure its functioning properly.
3. Accelerator's body and forward & reverse drive switch shall be waterproof.
4. Suppliers may have to interchange the position of wire inside connectors if required.

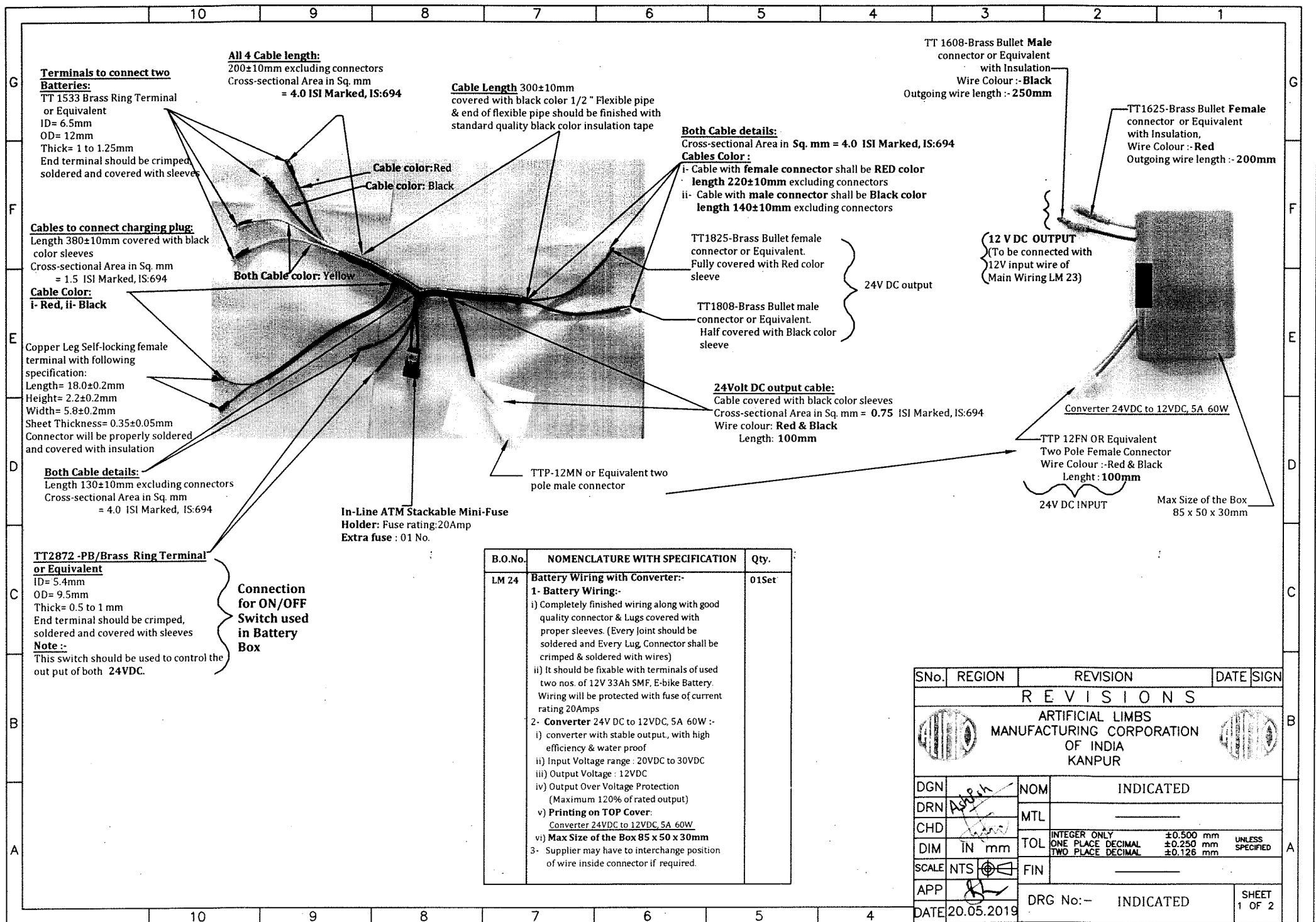
SNo.	REGION	REVISION	DATE	SIGN
R E V I S I O N S				
ARTIFICIAL LIMBS MANUFACTURING CORPORATION OF INDIA KANPUR				
DGN	Ashish	NOM	INDICATED	
DRN		MTL		
CHD		TOL	UNLESS SPECIFIED	
DIM	IN mm	INTEGER ONLY ONE PLACE DECIMAL TWO PLACE DECIMAL	±0.500 mm ±0.250 mm ±0.126 mm	
SCALE	NTS	FIN		
APP		DRG No:— INDICATED		SHEET 1 OF 1
DATE	20.05.19			

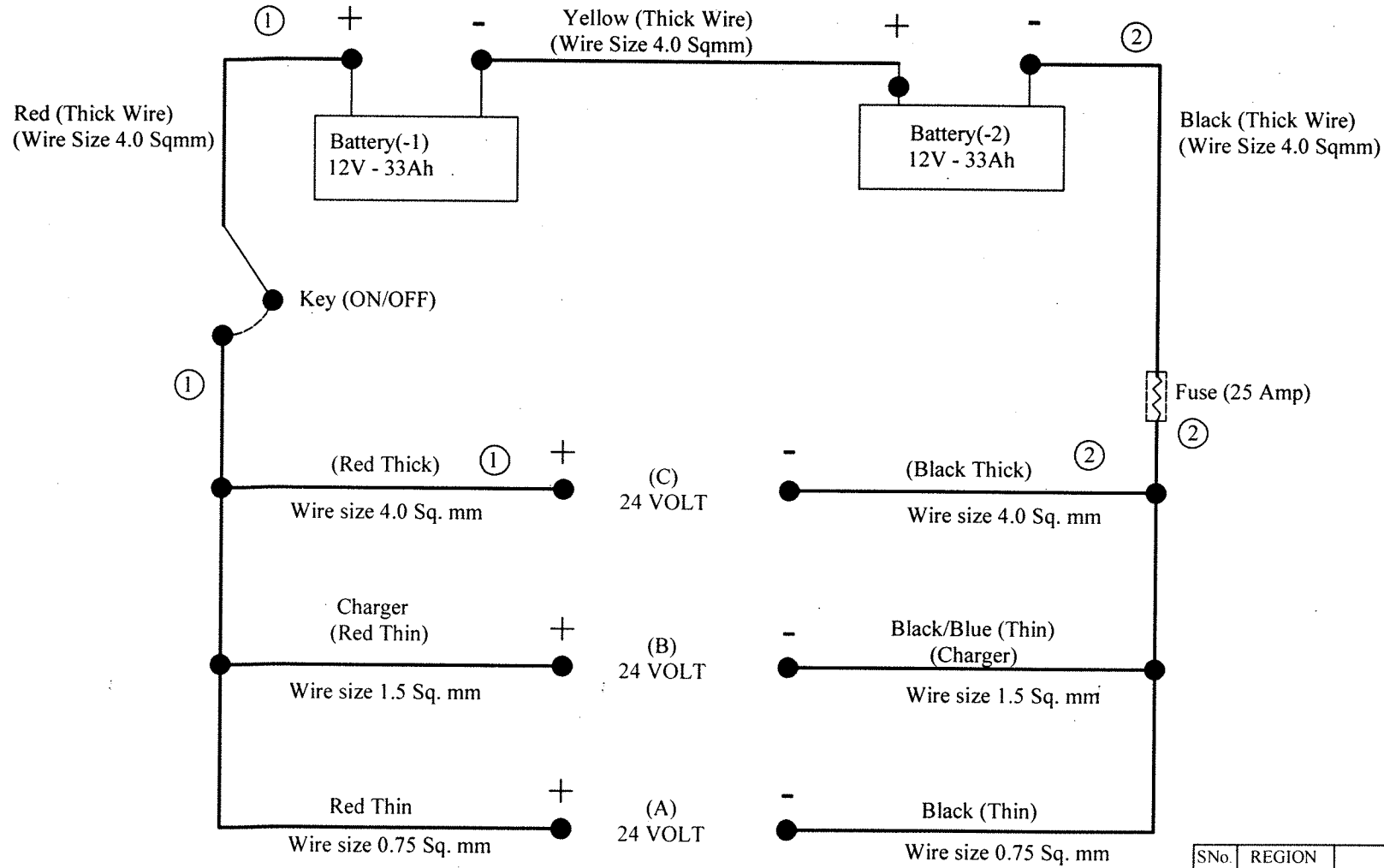




SNo.	REGION	REVISION	DATE	SIGN
REVISIONS				
ARTIFICIAL LIMBS MANUFACTURING CORPORATION OF INDIA KANPUR				
DGN	DRN	NOM	MAIN WIRING DIAGRAM	
CHD		MTL		
DIM	IN mm	HEAT TREATMENT		
SCALE	NTS	SURFACE TREATMENT		
APP		DRG No:-		
DATE	20.05.2019		SHEET 2 OF 2	





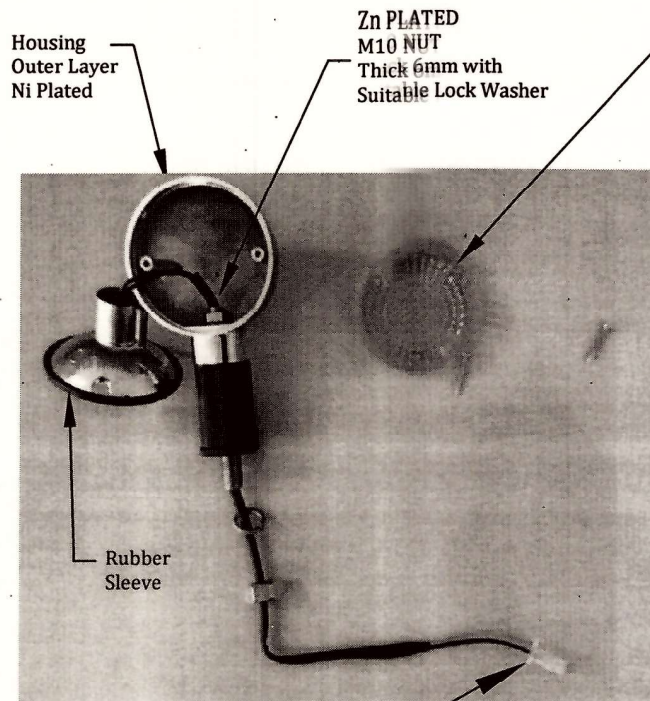


A - Supply for Converter (Converter 24VDC to 12VDC, 5A 60Watt)

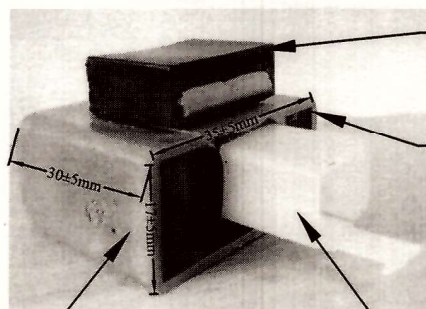
B - Connected to Charger Socket

C - Supply to controller

SNNo.	REGION	REVISION	DATE	SIGN
REVISIONS				
ARTIFICIAL LIMBS MANUFACTURING CORPORATION OF INDIA KANPUR				
DGN	Asst. Engr.	NOM	Battery Wiring Diagram	
DRN	Asst. Engr.	MTL		
CHD	Asst. Engr.	HEAT		
DIM	IN mm	TREATMENT		
SCALE	NTS	SURFACE		
APP	Asst. Engr.	TREATMENT		
DATE	20.05.2019	DRG No:-		
				SHEET 2 OF 2



**Wire Colour**  
 1. Green & Black (First Indicator)  
 2. Blue & Black (Second Indicator)  
 Wire length 90±10mm excluding connectors



Detachable Rubber holding

Flasher Dimension are for reference only

Pin Type: TTP-12MN or Equivalent two pole male connector

Universal Flasher without Beep Sound (DC 12V, At least 5 Watt)

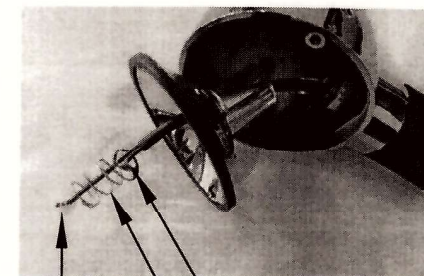
B.O.No.	NOMENCLATURE WITH SPECIFICATION	Qty.
LM 25	<b>REAR LIGHT INDICATOR ASSY RIGHT &amp; LEFT WITH FLASHER:-</b> 1. Light Indicator Right & Left with a) LED bulbs rating shall be between 3 to 5 Watt b) Outgoing cable will be covered with Black colour sleeve. 2. Three pin flasher to operate LED indicator and all three pin & inside component should be fixed properly. 3. Operating voltage for indicators & flasher is 12V DC 4. Supplier may have to interchange position of wire inside connector if required.	01 Set (02 Nos.)

M12 Thread 20mm Length Zn Plated

MS SPRING washer (Zn Plated) :  
 ID - 13.00mm  
 OD - 19.50 mm  
 Thickness - 2.0mm (Min.)

M12 NUT Thick 10mm (Zn Plated)

LOCK PIN Ø5x3mm Material- MS, Zn Plated



PLASTIC HOLDER

SNo.	REGION	REVISION	DATE	SIGN
<b>REVISIONS</b> ARTIFICIAL LIMBS MANUFACTURING CORPORATION OF INDIA KANPUR				
DGN		NOM	INDICATED	
DRN		MTL		
CHD		HEAT		
DIM	IN mm	TREATMENT		
SCALE	NTS	SURFACE TREATMENT		
APP		DRG No:-	INDICATED	
DATE	20.05.2019		SHEET 1 OF 1	



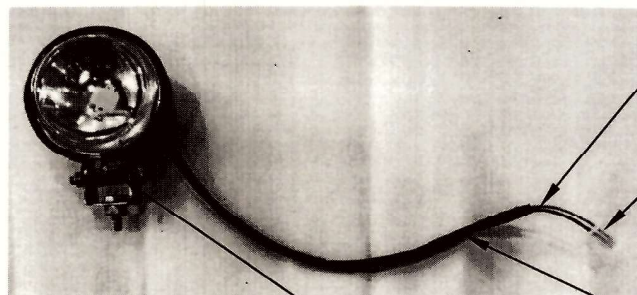


Fig. 1

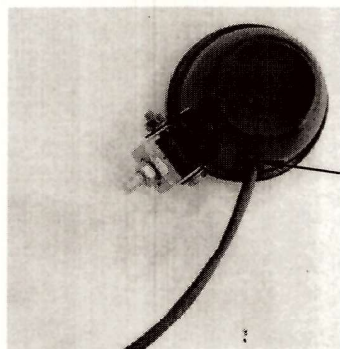

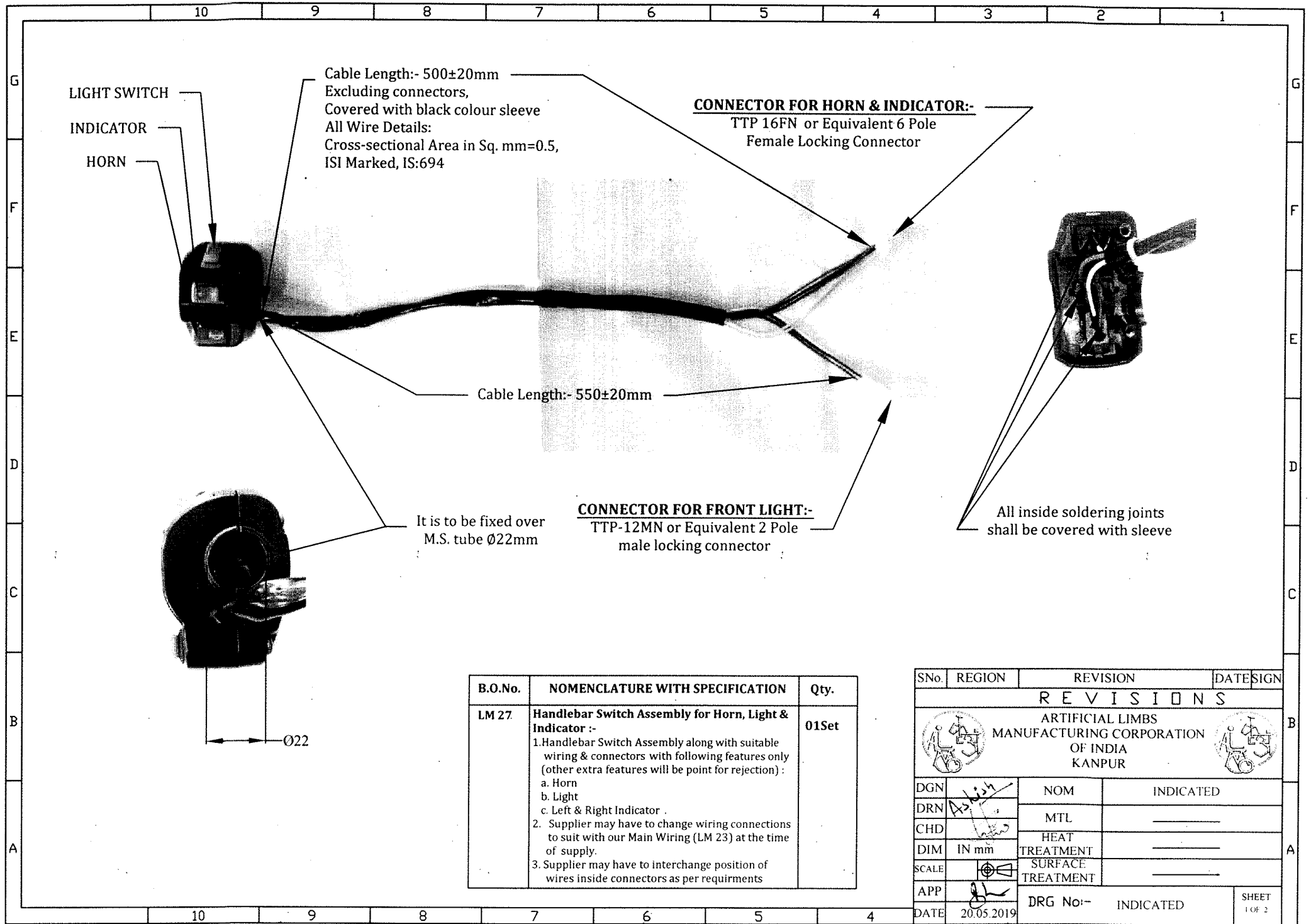


Fig. 2

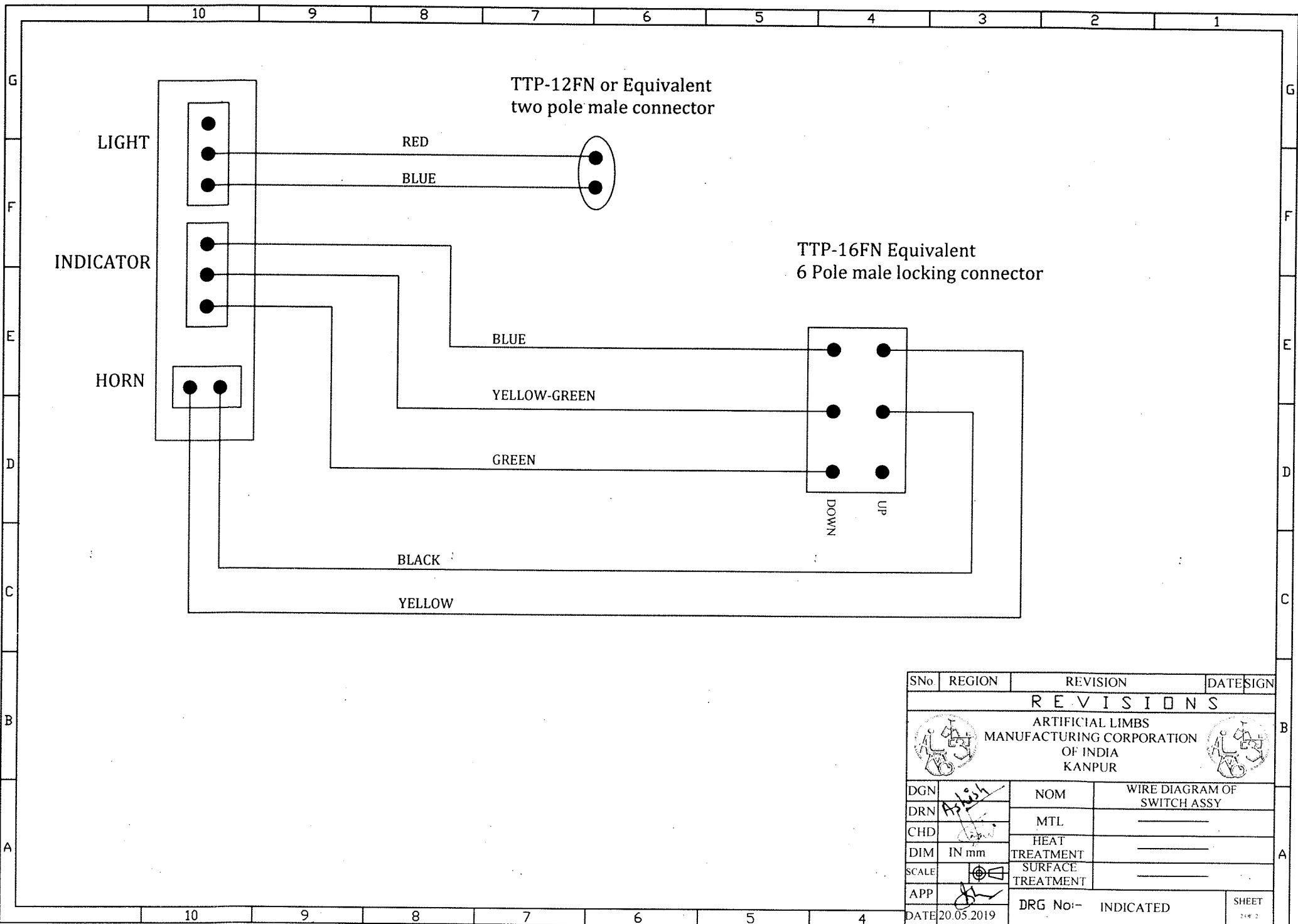
B.O.No.	NOMENCLATURE WITH SPECIFICATION	Qty.
LM 26	<b>FRONT LIGHT ASSY:-</b> i. With LED bulb 3 to 5 Watt ii. Operating Voltage 12V DC iii. To be supplied with Hex Bolts, Nuts , Washers and other fixing arrangement as shown in fig. 2 iv. Fixing items shall be Zn plated v. Outgoing wire length :-230±10mm excluding connector v. <b>Wire Details:-</b> Cross-sectional area in Sq. mm = 0.5 ISI Marked, IS:694 Wires joints should be soldered properly. Wires shall be covered with Black colour sleeve vi. Supplier may have to interchange position of wire inside connector if required.	01Set

SNo.	REGION	REVISION	DATE	SIGN
<b>REVISIONS</b>				
 <b>ARTIFICIAL LIMBS MANUFACTURING CORPORATION OF INDIA KANPUR</b>				
DGN		NOM	INDICATED	
DRN		MTL		
CHD		TOL		
DIM	IN mm	SCALE	INTEGER ONLY ±0.500 mm ONE PLACE DECIMAL ±0.250 mm TWO PLACE DECIMAL ±0.126 mm UNLESS SPECIFIED	
APP	NTS	FIN		
DATE	20.05.2019	DRG No:-	INDICATED	
				SHEET 1 OF 1



B.O.No.	NOMENCLATURE WITH SPECIFICATION	Qty.
LM 27	<b>Handlebar Switch Assembly for Horn, Light &amp; Indicator :-</b> 1. Handlebar Switch Assembly along with suitable wiring & connectors with following features only (other extra features will be point for rejection) : a. Horn b. Light c. Left & Right Indicator . 2. Supplier may have to change wiring connections to suit with our Main Wiring (LM 23) at the time of supply. 3. Supplier may have to interchange position of wires inside connectors as per requirments	01Set

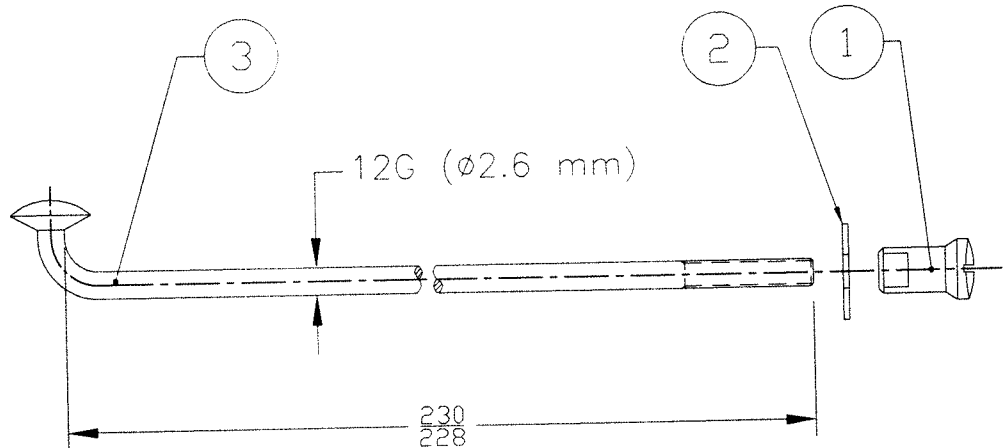
SNo.	REGION	REVISION	DATE	SIGN
<b>REVISIONS</b> ARTIFICIAL LIMBS MANUFACTURING CORPORATION OF INDIA KANPUR				
DGN		NOM		INDICATED
DRN		MTL		
CHD		HEAT		
DIM	IN mm	TREATMENT		
SCALE		SURFACE		
APP		TREATMENT		
DATE	20.05.2019	DRG No:-	INDICATED	SHEET 1 OF 2





SNo	REGION	REVISION	DATE	SIGN
REVISIONS				
ARTIFICIAL LIMBS MANUFACTURING CORPORATION OF INDIA KANPUR				
DGN	Asish	NOM	WIRE DIAGRAM OF SWITCH ASSY	
DRN		MTL		
CHD		HEAT		
DIM	IN mm	TREATMENT		
SCALE		SURFACE		
APP		TREATMENT		
DATE	20.05.2019	DRG No:-	INDICATED	SHEET 2 of 2

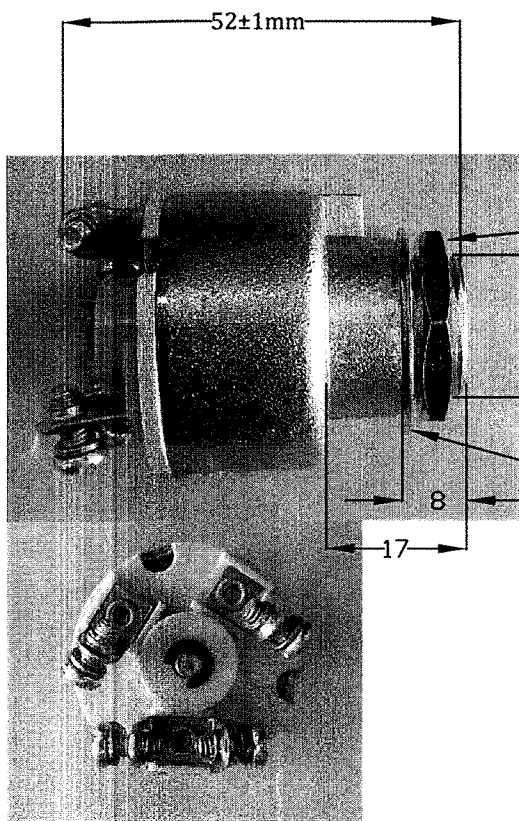


ITEM No.	DRG No.	NOMENCLATURE	QTY.	REMARKS
1	LK 15	NIPPLE TO SUIT BICYCLE SPOKES Ø 2.6mm (12G), BRASS, Ni. Cr. PLATED IS:630	36	
2	LK 16	WASHER TO SUIT NIPPLE BICYCLE SPOKES Ø 2.6mm(12G) IS:630	36	
3	LK 10	BICYCLE SPOKES FOR 26"x2.125"WHEEL, LENGTH 230/228mm, Ø 2.6mm (12G), Ni. Cr./Zn. PLATED,IS:630	36	



PRODUCT No.	B.O.No.	NOMENCLATURE WITH SPECIFICATION	Qty.
TD 2 A 65 Z 03	L K 23	SPOKE ASSY FOR HUB DRIVE MOTOR, Ø2.6mm (12G) FOR 26"X2.125" WHEEL WITH 36 HOLES	36 Nos.

02	—	SPECIFICATION MODIFIED AT ITEM No.03	03.02.17	82
01	—	SPECIFICATION OF LK 15 MODIFIED AT ITEM No.01	13.07.16	20
SNo.	REGION	REVISION	DATE	SIGN
R E V I S I O N S				
 <b>ARTIFICIAL LIMBS MANUFACTURING CORPORATION OF INDIA KANPUR</b> 				
DGN	<i>[Signature]</i>	NOM	INDICATED	
DRN	<i>[Signature]</i>	MTL	—	
CHD	<i>[Signature]</i>	TOL	INTEGER ONLY ±0.500 mm ONE PLACE DECIMAL ±0.250 mm TWO PLACE DECIMAL ±0.126 mm UNLESS SPECIFIED	
DIM	IN mm	FIN	—	
SCALE	NTS	FIN	—	
APP	<i>[Signature]</i>	DRG No:— INDICATED		SHEET 1 OF 1
DATE	08.03.2016			





Threaded Ø18.5

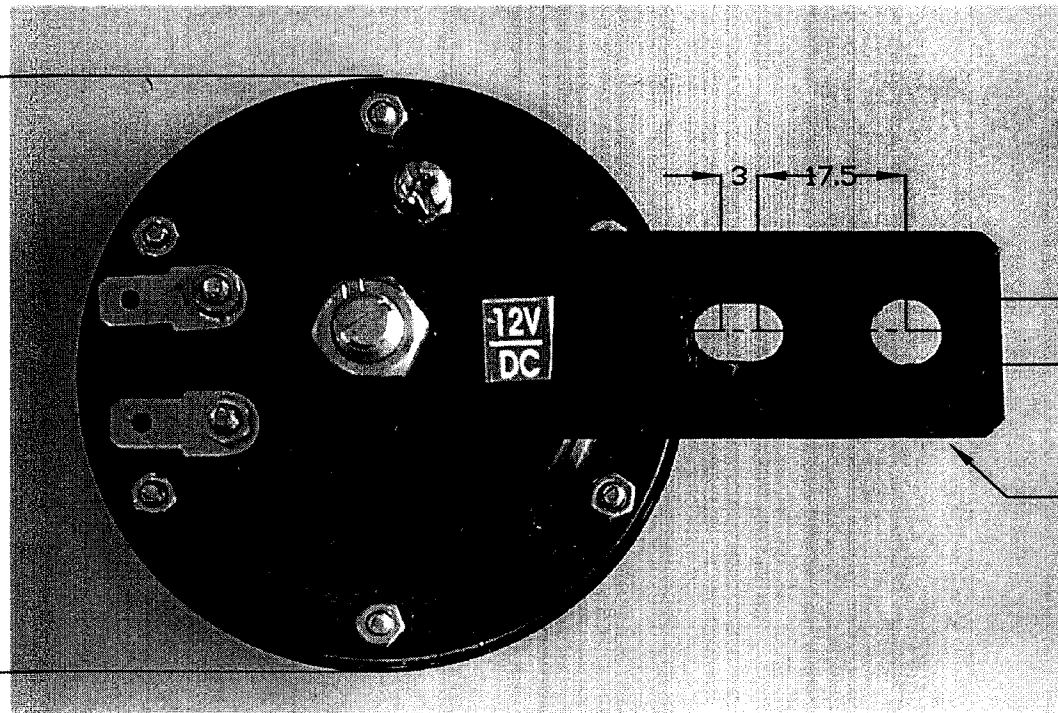
Nut thickness = 3.5mm(Min.)

MS washer:  
ID - 19.50mm  
OD - 26.50 mm  
Thickness - 1.0mm(Min.)

PRODUCT No.	B.O.No.	NOMENCLATURE WITH SPECIFICATION	Qty.
TD 2 A 65 Z 09	L K 29	ON/OFF Switch used in Battery Box:- Good quality ON/OFF Switch along with Key, Nut and washer, able to carry at least 20 Amp current.	01Set

01		SPECIFICATION MODIFIED	03.02.17	KL
SNo.	REGION	REVISION	DATE	SIGN
R E V I S I O N S				
 <b>ARTIFICIAL LIMBS MANUFACTURING CORPORATION OF INDIA KANPUR</b> 				
DGN	DRN	CHD	NOM	INDICATED
			MTL	
DIM	IN mm	TOL	INTEGER ONLY	±0.500 mm
			ONE PLACE DECIMAL	±0.250 mm
			TWO PLACE DECIMAL	±0.126 mm
SCALE	NTS	FIN		
APP				
DATE	08.03.16	DRG No:-	INDICATED	SHEET 1 OF 1

Ø76 to 80mm



Ø8mm

Fixing arrangement  
( M S Sheet 85x25x1.25mm Thick)

PRODUCT No.	B.O.No.	NOMENCLATURE WITH SPECIFICATION	Qty.
TD 2 A 65 Z 14	L K 34	HORN 12V DC	01Set

01		SPECIFICATION MODIFIED	03.02.17	81
SNö.	REGION	REVISION	DATE	SIGN
R E V I S I O N S				
ARTIFICIAL LIMBS MANUFACTURING CORPORATION OF INDIA KANPUR				
DGN	NOM		INDICATED	
DRN	MTL			
CHD	TOL		INTEGER ONLY ±0.500 mm ONE PLACE DECIMAL ±0.250 mm TWO PLACE DECIMAL ±0.126 mm UNLESS SPECIFIED	
DIM	IN mm	FIN		
SCALE	NTS			
APP	DRG No:-- INDICATED			SHEET 1 OF 1
DATE	08.03.16			



10 9 8 7 6 5 4 3 2 1
G  
F  
E  
D  
C  
B  
A

PRODUCT No.	B.O.No.	NOMENCLATURE WITH SPECIFICATION	Qty.
TD 2 A 65 Z 16	L K 88	BATTERY BOX ASSY	01 SET

**BACK VIEW**

**LEFT VIEW**

**FRONT VIEW**

**RIGHT VIEW**

IEC C14 C13, THREE PIN CHASIS PANEL MOUNT PLUG CONNECTOR 250V 10Amp (FEMALE) ASSEMBLED BY SCREWS & NUTS WITH BOX SHALL BE SUPPLIED

10 9 8 7 6 5 4 3 2 1
B  
A

SNo.	REGION	REVISION	DATE
<b>REVISIONS</b>			
ARTIFICIAL LIMBS MANUFACTURING CORPORATION OF INDIA KANPUR			
DGN		NOM	INDICATED
DRN		MTL	SHEET G.I. 22 G (0.71mm) THICK
CHD		HEAT	
DIM	IN mm	TREATMENT	
SCALE	NTS	SURFACE	
APP		TREATMENT	
DATE	04.02.2017	DRG No-	INDICATED

10 9 8 7 6 5 4 3 2 1
A

